USE OF E-RESOURCES BY THE RESEARCH SCHOLARS AND SCIENTISTS IN ITRC (INDIAN INSTITUTE OF TOXICOLOGICAL RESEARCH), LUCKNOW: A SURVEY

Dissertation

Submitted in Partial Fulfillment of the Requirements for the award of the Degree of

Master

Of

Library & Information Science

(2010-11)

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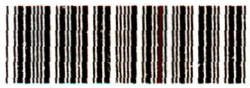
2011



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CERTIFICATE

This is to certify that Mr. Mohd. Saifulla has completed his dissertation entitled "Use of E-Resources by the Research Scholars and Scientists in ITRC (Indian Institute of toxicological Research), Lucknow: A Survey" in partial fulfillment of the requirements for the degree of Master of Library and Information Science (2010-2011). He has conducted the work under my supervision and guidance.

I deem it fit for submission.

S. Mustafa K.Q. Zaidi

(Associate Professor)

Dedicated To

My

Loving Abbu

&

Ammi

ACKNOWLEDGEMENT

"In the name of Allah the most beneficent and merciful"

"All praise to Almighty 'Allah', the creator, cherisher and sustainers of the world. He created man and taught him that which he knew not (Al-Quran)." He is the most gracious and most merciful to all His creatures. He endured me with the requisite knowledge and ability to produce this piece of work. I bow down to Him, in gratitude with all humanity from the depth of my heart.

I am thankful to Allah for giving me nice parents who care, sacrifice and their sustained efforts enable me to acquire knowledge. Whatever I am today is because of their prayer, love and care and endeavours. I cannot give them anything in return except a heartful of love, affection and deep reverence.

I feel immense pleasure to express my regards, deep sense of gratitude, heartful devotion and sincere thanks to my esteemed teacher and supervisor, Mr. Mustafa K.Q. Zaidi, Associate Professor, Department of Library and Information Science, AMU, Aligarh, who despite of his busy schedule, provided me excellent guidance, motivation, constant help at any time and keen interest in my dissertation, without his untiring efforts and able guidance this work, would have never taken the present shape. It was a great opportunity to work under his supervision.

I sincerely express my sense of gratitude to Dr. Naushad Ali P.M., (Chairman), Department of Library and Information Science, AMU, Aligarh, for his benign guidance, inspiration, encouragement and valuable suggestions at every stage during the course of my stay in department.

I pay my special thanks to Honourable, Prof. Shabahat Husain, (Library-In-Charge), Maulana Azad Library, AMU, Aligarh, for his unfailing support and guidance that is beyond the words.

I express my indebtness to all my Teachers, Dr. (Ms.) Sudharma Haridasan, Reader, Dr. Nishat Fatima, Sr. Lecturer and Dr. Mehtab Alam Ansari, Sr. Lecturer, for their moral encouragement, invaluable advice and affection they gave me.

I am also thankful to the in-charge of Seminar Library, Department of Library and Information Science especially **Mr. S. Riaz Abbas, Mr. Zahid Hasan** *and* **Mr. Sharique** *who have rendered great assistance to me in the collaboration of materials. I am also thankful to the Lab in-charge* **Mr. Mohd Asif Khan** *for his help during the session. My thanks are also due to the office Staff especially* **Mr. S.C. Joshi, Mr. Gulrez Alam and Mr. Shams-uzzaman** *for their help.*

My humble feelings of gratitude are also for Ammi, Abbu, Chacha, my bhaiya Zafar and Bhabhi Khalida , my sisters, A. Mushir, Q. Mushir, and F. Mushir, my niece Zeba and nephew and my family which cannot be expressed in words. They always give me lots of love and affection, encouragement to achieve this goal and prayed for my success.

I have no words to express my extreme thanks to my special friends Hasnain Beg Tanveer, Tarique, Aarif, Usman, Muzzammil who always stood by me through thick and thin and for their care, co-operation, inspiration and moral support.

I would also pay my special thanks and appreciation to all my classmates who saved me from lots of labour and turmoil by their continuous help, care, cooperation and in understanding this venture.

Mohd. Saifullah

CONTENTS

List of Tables

List of Figures

Chapter-1

Introduction

1. INTRODUCTION

Information technology-an invention of the twentieth century has already entered in every field of human activity. Growth and development of information technology mainly emerged after World War II and since then it is playing a vital role in the development of libraries. For centuries, libraries have been entrusted with the work of gathering, recording, organizing and disseminating information and knowledge, mostly in the form of physical media. But due to fast development and application of information technologies in libraries, within past few decades libraries are engaged in collection of e-resources to a large extend.

Thus e-resource is the hot topic among the libraries technological revaluation and information explosion has changed our outlook towards functioning of libraries, and the library environment is rapidly changing to electronic environment. In comparison with traditional resources, the description of electronic resources is considered as are the most challenging task for libraries.

Electronic resources are still involving as to their nature and content. Hence, libraries are still considering the conceptual issues related to e-resources. Bibliographic control of e-resources is one of the major challenges that are being faced by the present day librarians.

Finding the right information on the web is the cumbersome process, even though many free and commercial search engines provide assistance to the scientist and engineer are get to little time to hunt information from their busy research schedule. To meet the

information requirement of the users, people who work is special libraries face many challenges in providing e-information services.

Thus electronic media like floppy disk, magnetic tape, CD-ROMS, DVDs etc and online E-Resources (E-Books, E-Journals) are slowly replacing the physical hard volumes of books and journals. E-Resources are providing the request documents within few hours. So e-resources provide fast and easy access to the information and fulfilling the four law of library science given by Dr. S.R. Ranganathan i.e. ***"Save the time of the users"***

2. DEFINITION:

There is no universally accepted definition of e-resources. Someone calls it as paperless resources; some people say virtual resources and some say as 'Online resources' the expert in these fields give the definition of e-resources on the basis of production, distribution etc.

E-information resources can be defined as resources that include both documents and non-document is electronic or e-formats that provide information or a pointer to the information can be accessed via internet or LAN (Local Area Network).

According to IFLA– International Standard Bibliographic Description (e-resources)

"An electronic resources consists of materials that are computer controlled, including materials that required the use of a peripheral (e.g. a CD-ROM player) attached to a computer; the items may or not be used in the interactive mode. There are two types of e-

resources: data (information in the form of numbers, Letters, graphic, images and sound or a combination there of) and programs instructions or routines for performing certain tasks including the processing of data and programs (e.g. online services, interactive multimedia).

According to AACR 2, 2008 update

"An electronic resource is material (data and or program (s) be encoded for manipulation by a computerized device. This material may require the use of peripheral directly connected to a computerized device (e.g., CD-ROM drive) or a connection to a computer network (e.g. the internet)."

According to journal of chemical information and computer sciences 1984

E-services are not valuable in and of themselves. They merely add values to existing information through improved packaging and distribution ---- E-Services are used because they provide access to information, and it is information that users want and need.

3. Concept of E-Resources

E- Resources originated from the concept of e-publishing since 1985 significant development have taken place on electronic publishing. The concept of document on paper is being changed to "electronic document" i.e. e-document or electronic resources. Electronic resources can be defined as the document resources existing in an electronic form to be accessed by computer.

The electronic resources are the resources in which information is stored electronically and accessible through electronic system and network. E-resource is a very broader term that includes a variety of different publishing models, including OPAC, CD-ROMS, Online database , e-journals, e-book, e-thesis, internet resource, print –on demand (POD), e-mail publishing, wireless publishing, electronic link and web publishing etc.

Thus e-information resources any of several different categories of databases and machine readable (online) files including, but not limited to e-journals, on-line databases, www sites and CD-ROM databases.

4. Development /Growth of E-Resources

The use computer for information on storage and retrieval activities began in early 1990s in an offline, batch processing, tape-oriented mode. Vast amount of bibliographic data for printing of indexing and abstracting services were computer processed and then printed. Gradually, computers were increasingly used for prototype setting and for other operations relating to publishing.

Computerized type setting and page layout software are now common place. Journal articles are now submitted on disk (and presentation and layout of material already in machine readable form. The process creates data files from which output can be generated for other media. As such, full text online journals were available through online hosts like DIA-LOG for past several years.

The first prototype and e-mail journal and *'CHIMO'* was published in 1976 *by New Jersey Institute of Technology*, the first peer reviewed electronic, full text e-journal including graphics was *OJCCT.* In recent years, a large numbers of online journals have been launched which have no print version at all. *The Institute of Electronic and Electronics Engineering (IEEE)* encodes all journals. It is published in markup language for online viewing. The *Elsevier Science Publishers* have launched Science Direct to extend web access to more than 1,100 journals published by them. Many important journals such as *Nature Online, Science Online, New England Journals of Medicine, and British Medical Journals (BMJ)* etc. are also available online.

5. Type of E-Resources

The E- Resource of a library basically includes the following, which should be acquired by library as per its needs, infrastructure, facilities financial provision etc. The different type of E-Resources is described as follows:

- CD-ROMs
- On-line Databases
- On line reference sources
- E-Journal
- E-Book
- E-theses
- Electronic Newspaper
- E-encyclopedia
- List serves

CD-ROM

CD-ROM is chief e-resources of a library which is used in the storages of a large amount of data with user friendly search software. It can be networked through a CD-Server or exist as a standalone unites and both specific or general in coverage. Although the initial investment to use this technology is high but later on it is cost effective as its offers unlimited access time facility to any number of users at no extra charge.

Examples

i. ***AGRIS*** International published by dialog contains database of journals on agriculture

ii. ***CAB*** abstract published by dialog abstract article from more than 50 journals

Online Database

Online database are the organized set of data stored in a computer and which can be searched automatically. More and more e-databases in bibliographic as well as full text sources are available and also added up frequently up with the growing demand of users some databases are web enabled and some are networked solutions. Web enabled databases are easily accessible from user desktops through the web browser while the networked solutions may require special installation at client side. *According to Jenifer Rowley* databases that might be available to information users in the public arena, and which might be accessed either remotely via an on-line search service or more locally on CD-ROM the e-databases may be of following types.

- *Bibliographic database*
- *Full text database*
- *Statistical database*

Bibliographic databases

In bibliographic databases, all those databases are counted in which the information related with document such as books periodicals, encyclopedias etc. is contained and users use them for access to information. According to P.*K. Kawatra "Bibliographic database contents a file of document description that is record, one can use for deciding whether to search for the document itself. Document may be Journal Articles, Reports, Patents, Books etc".*

Examples

- *Asiatic Society Journal Index.*
- *INDMED-* Index to Indian biomedical journal develops and design by Indian MEDLARS center.
- *ERIC* database on education.
- *National Library of Medicine (NLM)* database provides a wide rarely of resources related to the biomedical and health science. Important resources are MEDLINE text net biomedical information clinical alerts etc.

Full Text Database

This category contains not only full text of the documents but also tells story also; hence once can get primary information along with full text.

Example

- *Economic history encyclopedia Index*
- *Scientific electronic library online*
- *Searchable ornithological research archive*

Statistical Text Database

Statistical /Numeric databases are those that contain numeric statistical or survey type of information to give answer of numeric queries.

Examples

- *Census information*
- *Database on Indian economy*
- *Reserve Bank of India*

On –line Reference Sources

The reference source is an electronic version of traditional library reference sources held in hard copy. For example, Dictionaries, Handbooks, Encyclopedias, Citation Analyses Guide, Maps, Atlases, Bibliographic Sources and Translation Services mostly are 3-D objects so that a complex topic becomes comprehensive even to common and unsophisticated readers. The e-reference source offers

online access to thousands of information sources both licensed and free.

E- Journals

An E-Journals is processed, Published and Distributed all over the world by electronic network. Electronic Journals are available on the on-line as well as in CD-ROM form. The first E-Journal appeared in 1980 (DIALOG in 1980 started full text database) and they become common in the 1990s. Now *Ulrich's Periodicals Dictionary* lists amount 30,000 online serials.

Initially, Publishing an Electronic serial meant that the text of the print serial was made available electronically. While that is still a major part of the process, electronic serials now frequently include supplemental materials such as the statistical data used in the research audio and video material, links to article cited in bibliography, or commentary about the article. An e-journal may include for more information than was available in the print version if the author and publisher have the capabilities to produce the expanded version. An increasing number of e-journals are created as e-publications without ever having existed in print version. These new journals include scholarly previewed journals and newsletters. Some of these titles are free, whereas others charge subscriptions fees. If the libraries or users do not subscribe a journal, they can purchase individual articles from the publishers or database producer.

E-Journal/E-Book can be browsed and searched by:

- *Keywords*
- *Title of article*
- *Abstracts*
- *Author's name*
- *Journal title*
- *Natural Language searching*

Websites of some societies and publishers are given as under:

- *IEEE Electronic Library (IEL) (http://www.ieee.org)*
- *American Chemicals Society (ACS) (http://www.acs.org)*
- *Elsevier Science (www.elsevier.com)*
- *Kluwer Academic Publisher (www.wkap.nl/kaphtm.htm)*

E-Books

E-Books have been slower to develop the e-journals for a number of reasons, most of which involve the current technology. E-Books are available in three ways: books that can be read on personal computer screen, books that can be read on PDAs (Personal Digital Assistant). The handled readers designed to read electronic books and somewhat expensive, and the different brands and incompatible. These electronics readers and books are described as "dead on arrival", and "unwieldy and unreadable".

Since 1970s the development of electronic versions of printed books (E-Books) has been as a part of the whole e-publishing phenomenon. An e-book is a representation of a book usually a parallel publication of a print copy, but occasionally born digital.

E-books have electronic text, which readers can see visually. Electronic text can be saved into floppy disk, transferred into a CD-ROM, downloaded from the internet and built into a palm sized digital reader. *The new concise Oxford English Dictionary (2001) defines as e-book as : an electronic version of a printed book which can be read on a personal computer or handled devise designed specifically for this purpose.*

A good number of e-books are available in most of the subject area online which can be accessed from the net either free or on payment.

There are two types of E-Books:

I. Those which represent an E-version of a whole books (Print)
II. Those which are effectively data base of linked materials. Some online e-books publishers and e-books seller are as follows.

- Bartelby.com-offers full text online access to reference, literature and various books.
- Books-online.com-includes both free and priced book in its collection, book are available on all subjects and are classified by using DDC.
- Library-offers online free access to E-book on various subjects. The brows these books one has to download their plug in.
- *Net library (http://www.netlibrary.com/gateway.aspx)*
- *Kluwer online(http"//www.kluweroutline.com/ebooks/sales)*
- *Cyber read (http"//www.cyberread.com)*
- *Questia (http://www.questia.com)*

E-Theses /Dissertatio

Electronic Theses and Dissertation are popularly known as ETDs. ETDs are digitized version of conventional theses and dissertation. Resources for graduate student who are writing these and dissertation are jointly published on online are called e-theses and dissertation. It is consulted by faculty staffs, research scholar and graduate students. It is especially for academic researcher and their members, yet anyone interested in research and e-publishing will enjoy this resource. There are good numbers of ETD submission website. IT administrators at universities take initiative for ETD programs Network Digital Library of Theses and Dissertation (NDLTD) is a non-profit Organization trying to develop accessible digital libraries of theses and dissertation.

Electronic Newspaper

It in a self contained, reusable and refreshable version of traditional newspaper, which acquires and holds information electronically information will be download through an internet connection.

The challenges involved in creating a viable electronic newspaper in to develop a device that has the desirable characteristics of traditional paper in addition to its own inherent (such as being automatically refreshable). Like traditional paper, the electronic newspaper must be lightweight, flexible, high resolution, glare-free and affordable, if it to gain consumer approval.

E-Encyclopedia

E-Encyclopedia combines the best of a traditional encyclopedia with an extra digital dimension. The book's dedicated website has been created with Google, the world's leading search engine. It guides the reader to the most helpful appropriate and amazing sites the web has to offer. The e-encyclopedia is grouped thematically, in nine subject areas: space, earth, nature, human body, science and technology, people and places society and beliefs, art and entertainment history.

List serves

It provides a means for informal communication many list server are dissection lists that allow discussion to take place on a variety of topics and other provide access to electronic titles. Such as newsletter or serials pricing issues is equipage.

Others:

Some of other e-resources are as follows:

i. Abstracting & Indexing Databases

- ❖ OCLC first search
- ❖ CAS- Cambridge Scientific Abstract
- ❖ DIALOG

ii. E-Content pages

iii. E-Clipping

iv. E-Report

6. Advantage of E-Resource

Every coin has two aspects likewise the electronic resources has also some advantages and limitations. *Jain and Jain* say an electronic version offers at different type of storage and a moral flexible means of presentation be it a power point, hyper linked text or a PDP presentation. Digital media takes a very little space and they can hold great deal of information. Users neither has to worry about limit, which they have in their physical space as well as about losing, are misplacing their document.

Speed

The speed of publication and diversity of each issue of electronic resources (e-journal, article) is much faster than the print. The American Chemical Society put articles on their website as soon as publishable which can be up 11 week before print. This all means that information is much more up to date than can be achieved with paper.

Easy to Search

Searchable is one of the core advantages of digital format. *Hitchcock et al.* argue that the easier it is to find research, the fewer duplicated experiments there will be, resulting in less wasted time. However Missing ham raises the problem of information overload, with information easier to find, there will be much move to read and keep up to date with.

Distribution

The major advantages of e-resource are their global distribution their hyper tech link, the ability to access from different sites and the ability to search.

Printing and Downloading

E-Resource provides the facilities of downloading and printing of the appropriate resources at and user workstations.

Saving Space

With the introduction of E-Resource provide the facilities of downloading and printing of the appropriate resources at end user workstations.

Searching and Retrieval

There are numbers of search engines available to access and to retrieve the appropriate e-resources from the web. It also provides the facility to keywords search, author search, and subject search etc.

Accessible

According to Ginsparg. It is far cheaper for these researches to get one computer with internet access than to subscribe to many journals so electronic journals will be a tool for further braking down the barriers to democratic research".

Round The Clock Availability

A major advantage of E-Resources is that user can gain access to the information at anytime night or day.

Archiving

There are very small incremental costs to storing longer documents so it is easy to include data sets images detailed analyzers simulation etc. that can improve scientific communication. Some of the publishers provide complete volume on CD-ROM at the end of the year if the condition is incorporated in the management.

Manageable

The rapid turnaround time means that articles can be read, commented on by the general readers, and amended much more quickly that can be done with print. The ease with which e-mail can be seat or forms filled it means that there can be much greater feed back through the web.

Links

Links are mainstay of the hypertext format should be exploited. Not only papers can link to those they have cited, but with a bit of effort, they can link to them that cite them. Byce considers *"The intrinsic value of the link (to be) nearly as great as the content itself."*

Inexpensive

This the hotly debated point, with Harnad *claiming that a 70% saving our print costs can be made well wisher argues that only a 20% saving can be made as distributions costs are a low proportions*

of the final price, and even that saving will be eaten up by extra cost caused by new feature.

7. DISADVANTAGE OF E-RESOURCE

The following are the major disadvantage of e-resources-

Difficult to read on computer screen

The main disadvantages of the digital information are the limitation of computer monitor.

Technical problems

Degradation and obsolescence of the media use for storing digital information and software used for manipulation of the stored digital information are the two major issues related to digitalization.

Lack of standard

There is a lack of standard as the guidelines and best practices for producing and maintaining digital objects for the long term are in the development stage.

Authenticity

It is difficult to ascertain the authenticity and integrity of an image of text when it is digital form, as it is very easy to manipulate and temper with data in digital form.

7. FEATURES OF E-RESOURCES

There are many features of E-resources

- ❖ Readability
- ❖ Preservability
- ❖ Comprehensibility in respect of linked information.
- ❖ Evidentiary value in terms of authenticity and integrity.
- ❖ Supporting multimedia content
- ❖ Network accessibility
- ❖ User friendly interfaces
- ❖ Unique referencing of digital objects
- ❖ Multi use and refer various area in same time
- ❖ Current Information Services
- ❖ Advanced search and retrieval
- ❖ Supporting both formal and informal learning
- ❖ Remote access
- ❖ Online discussion and commands
- ❖ Accessibility from anyone anywhere, anytime, during level etc.

WHERE TO PURCHASE E-RESOURCE

Librarian can purchase or lease e-resource from publishers, vendors, or consortia. Most of the larger subscription services and some of the larger book vendor can supply electric serials and books just as they supply print materials to library. Some large approval vendors including e-books in their approval programs, profiling the books in their databases and providing access to the items to their customers. In addition to the publishers and vendors that have supplied materials to libraries for many years group of affiliated

libraries, known as consortia, now play a major role in the acquisition of large and expensive e-resource.

Consortia allow libraries to purchase access to electronics resources for all members of the group, which make it possible for libraries to acquire resources they could not afford separately. Each method of purchasing electronics materials has advantage and disadvantages. For example, consortia purchasing can often allow libraries to acquire move resources at lower price than an individual library could obtain, but it can reduce the libraries control over the nature of the context and materials added to the collection when consortia purchase large collection of materials.

ROLE OF CONSORTIA

Library consortia have existed for many years, providing expedited interlibrary loan for members and doing limited cooperative collection development. As electronic resources developed libraries discovered that are sharing electronic resources that are prohibitively expensive for individual libraries become affordable when several libraries work together and share the costs. (http://www.ohiolink.edd)

Some consortia are funded by special state allocations; many are funded by membership contribution from the individual libraries. The consortia negotiate with publisher's on behave of their members, offering an expended numbers of customers and a stable level of funding to the publishers in exchange for increased access to electronics resources or for lower prices.

Consortia may have a formal governing board that coordinates all purchases, paying the publishers and billing its members. Other consortia negotiate the price and arrange for publishers to bill the members directly. Most consortia have legal documents describing their structure and the obligations of members; librarian must learn who has the authority to sign such documents for their institutions. Some consortia have full time staff members who handle all negotiations; others depend on staff from the consortia members to do all the work of the group.

.Problems in application of the e-resource in libraries

Lancaster identified the following problems associated with various aspects of electronic sources:

1. Investigation of electronic resources with traditional form.
2. Cost of acquisition Vs access.
3. Critical problem of determining what collection development really means in electronic environment.
4. Electronic resources are not adequately controlled bibliographically; they are not easy to identify and they are not well reviews.
5. Non-availability of selection tools
6. There is no developed system of publication and distribution of electronic resources.

The other types of problems associated with e-resources are as follows:-

- **Promotion of E-resources**
- **Need to improve access controls**
- **Access to the computer network**
- **Copyright law**
- **Electronic Information Security in Libraries**
- **Security policy and procedures**
- **Installation of computer**
- **Lack of trained library professional**
- **Lack of Training**
- **High Cost**
- **Lack of long-term approach**
- **Difficult of update frequently**

AREA UNDER THE STUDY

INTRODUCTION

Indian Institute of Toxicology Research (IITR) (formerly: Industrial Toxicology Research Centre), Lucknow, a constituent laboratory of Council of Scientific & Industrial Research, was established in 1965. It has a 'city campus', located on Mahatma Gandhi Marg, and the Gheru campus on Lucknow-Kanpur highway between 17-18th kilometer stone. IITR undertakes research in niche areas of toxicology. These include the impact of industrial and environmental chemicals on human health and ecosystem, and environmental monitoring of pollutants in air, water and soil. The institute also helps regulatory bodies to formulate/amend guidelines for safe use of chemicals/products, and ensures that the

common man is benefited. The motto of the laboratory is "Safety to Environment & Health and Service to Industry". The prime motto of the library is Safety to Environment and Health and Service to industry.

MISSION OF THE LIBRARY

ITRC, a leader in toxicology research, endeavors to mitigate problems of human health and environment. The institute aims to accomplish its goals through the following objectives:

- Safety evaluation of chemicals used in industry, agriculture and everyday life.
- Mode of action of toxic chemicals/pollutants.
- Remedial/preventive measures to safeguard health and environment from pollutants.
- Occupational health hazards due to exposure in chemicals industries, mines, agricultural fields and environment.
- Simple/rapid diagnostic tests for disorders caused by industrial and environmental chemicals
- Collect, store and disseminate information on toxic chemicals.
- Human resource development for dealing with industrial and environmental problems.
- Provide a platform to public and entrepreneurs to address queries and concerns regarding safety/toxicity of chemicals, additives and products.

HISTORY OF THE LIBRARY

ITRC, dream of a visionary, became a reality in 1965 as Industrial Toxicology Research Centre (ITRC) located in Central Drug Research Institute, Lucknow. The founder Director, Prof. Sibte Hasan Zaidi, could

foresee the need to address health related to work environment of the industrial workers in post independence era of rapid industrialization in our country. It was advocated that the adverse effects of chemicals on health and environment will make an adverse impact on overall development of the country. Hence, studies were needed to develop strategies for sustainable industrial development. ITRC gained national importance by addressing the health problems of our industrial work force in a growing economy. Pioneering studies carried out during the formative years were directly linked to miners' health especially to respiratory ailments.

COLLECTION OF LIBRARY

The ITRC Library contains huge collection which includes books, journals, reference books, research papers etc. Some of them are given below:

Books	12910
Bound Periodicals	13274
Current Periodicals	74
Indian Periodicals	37
Foreign Periodicals	37
Thesis	81
Research Papers	2580
Bibliography	23
Audio Cassettes	07
Video Cassettes	25
Annual Reports	60
CD-ROM Database	02

CD	18
Online Journals	04
About	29061

REFERENCES

1. Satyapathy, Sunil kumara, Swain chandrakant and Rotary, Bijayalaxmi (2008). Collection building and achieving of e-resources' in library: issues and concern, Digital libraries, Mahamaya New Delhi, 36.
2. ISBD, ER: International Standard Bibliographic Description for Electronic Resources http://www.ifla.org/VII/SIJ/Pubs/isbd
3. www.wied.edu.na/MBE/libraries/nis/general/insurance-1/hisman-defhtm.
4. American Library Association (1993). *"World encyclopedia of library and information services"*, ALA Chicago.
5. Chakrabarty, R. and Singh, R. (2005). E-Resources for Indian Universities: New Initiatives, *SRES journal of information management,* 42 (1), 7-73.
6. Cox, John E. (1997). Publishers, publishing and the internet: Now journal publishing will survive and prosper in the electronic age. *Electronic Library.* 1(5), 125-131.
7. Rathod, Meeta (2006). Digital Information in an undergraduate management college, *Digital Libraries in knowledge management,* Ess-Ess, 141-161.

8. Winter, E. and Dykstra, G. (2002), E-libraries comes into its own information, *Information Today,* 19 (7).

9. Rowley, J. (2001), "JISC user behavior monitoring and evaluation framework", Ariadne, 30.

10. Banerjee, S.K. (1999). Electronic journal: a new era. *IASLIC Bulletin*, 44(2), 116-121.

11. Nisonger, Thomas E. (1999). A review of the 1997 collection development and management literature, *Collection Building*, 18(2), 67-80

12. Maruthupandia, B, and others. Impact of e-document in the modern information era.

13. Keefer, A. (2001), Electronic journals, scholarly communication and libraries, *BIP*, 6.

14. Bradey, Phil and Hanson, Terry (1994). Going online and CD-ROM", *ASLIB the association for information management*, 2-3.

15. Jain, Sonal and Jain, Anil. Electronic protpholio: a valuable earning and assessment tool in higher education, *University News*, 44(13) 9-17.

16. Brown, S.A. (1997). Scholarly publishing using electronic means: a short guide, *Newcastle University*, Northumbia.

17. Hitchcock, S. Carr, L. and Hall, W. (1998), *"Marketing the most electronic journals".*

18. Grinsparg P (1999), *Winners and Losers in the global research village."* http://www.library.wine .edu/icsu/ginparg.htm.

19. Harnad, (1996), *"An implementing peer review on the net scientific quality contra in scholarly electronic journals". http://www.cogsci.soton.ac.uk/-harnad/papers/Harnad/harnad 96.peer.review.html.*

20. Syed, Shakil Ahmad (2004), *"Handbook on Information Technology*, 2.258-2.559.

21. Gregony, Vicki, L. (2000). Selection and managing electronic resources: a how to do it manual for librarian, Neat Schuman, New York.

22. Lancaster, F. W. (1987), Electronic Publishing, *Library Trends*, 37 (3), 316-325.

23. Moorthy, K. Thandera et al. (2003). Quality in digital information retrieval, *University News,* 6 (66), 7.

Web references:

1.Ohiolink (2009). International coaliation of libarary consortia, ohio library and information network.http://www.ohiolink.edu.

2.Rowley, J. (2001), "JISC user behavior monitoring and evaluation framework", Ariadne, 30
http:/www.ariadne.ac.uk/issue30/jisc/intro.html

Chapter-2

Review of Related Literature

Review of the Related Literature

Introduction

The literature review is the discovery of what is already known about a particular topic. A thorough understanding of knowledge that has already been produced related to the subject is being investigated. During the review of related literature, published information relating to the subject of an enquiry was identified, located and analyzed. In addition to producing relevant and valuable information, the literature review helps research workers regarding their plan of study as part of larger investigation and efforts about the subject or problem area, rather than isolated inquiries. The importance of the literature review is that it cites and gives review of related literature. It includes the research reports generally, which provide an insight into the problems. The reviewed literature is selected and organized in a logical manner, emphasizing methodological problems and issues as well as findings of previous studies. **(Krishna Kumar 27 -30)**

Literature review can be just a simple summary of the sources, but it usually has an organizational pattern and combines both summary and synthesis. A summary is a recap of important information of the source, but a synthesis is a re-organization, or a reshuffling of that information. It might give a new interpretation of old material or combine new with old interpretations, or it might trace the intellectual progression of the field, including major debates, and depending on the situation, the literature review may evaluate the sources and advise the reader on the most pertinent or relevant topics to peruse.

A good literature review is characterized by: a logical flow of ideas; current and relevant references with consistent, appropriate referencing style; proper use of

terminology; and an unbiased, comprehensive view of previous research on the topic. It helps with all types of assignment as well.

According to Cooper "A literature review used as its database reports of primary or original scholarship and does not report new primary scholarly itself the primary reports used in the literature may be verbal but in the vast majority of the cases reports are written documents the types of scholarship may be empirical theoretical critical/ analytic or methodological in nature. Second a literature review seeks to describes, summaries, evaluate clarify and/ or integrate the content of primary reports." **(Cooper 104-26)**

1] Thanuskodi and Ravi (2011) conducted a study under the title "Use of digital resources by the faculty and research scholars of Manonmanian Sundaranar University, Tirunelveli". The scope is limited to use of digital resources and to fulfill the teaching and research purpose of the faculties and to find out the problems faced by them. Some suggestions are given in the study that was conducted using a questionnaire method. There were around 200 faculty members and research scholars in various departments. Out of this, a sample of 150 faculty members and research scholars were taken as the random sampling method. The result of the study is drawn as most of the faculty member and research scholars (67.14%) were familiar with using the digital resources. Most of the faculty members and research scholars respectively as 24.36%, 21.33%, 19.39%, 15.62%, 14.58%, and 13.32% were using search engines, e-mail, online databases, CD-ROM databases etc daily. 64.28% of the faculty members and research scholars were using the digital resources. The study concludes that library and information science professionals should be well aware of the digital resources available in the

concerned field of study and evaluate these before subscribing them for their library users.

2] Shukla and Mishra (2011), conducted a study under the title "Use of e-Resources by the research scholars of institute of technology, Banaras Hindu University, India", to highlight the problem faced by them in accessing e-resources, their views on resources and to find out the basic search strategy for accessing e-resources. The survey was conducted by a structured questionnaire circulated among the sixty research scholars from different departments of Institute of Technology. The response rate was 83.33%. A stratified accidental random sample method was used for the selection of respondents and interaction with those who were available in the department during the survey. The collected data were analyzed and classified by employing the statistical method. The result of the study is elaborate as the 76% research scholar of BHU IT using e-resources daily. 88% cases scholars use e-resources for their research work. Majority of the research scholars accessed e-resources in the department.

3] Patil and Parameshwar (2009) conducted a survey on "Use of Electronic resourses by the faculty members and research scholars in Gulbarga University, Gulbarga: a survey" was conducted through questionnaire method .Questionnaires were circulated among the faculty members and research scholars and collected through personal interaction with the researchers. Of the approximate number of total 212 faculty members about 151 faculty members have responded to the study, and out of 412 research scholars ,only 268 were responded to the present study .the collected data is analyzed ,tabulated ,interpreted and presented. This survey revealed that the electronic resources available in the Gulbarga University library

were helpful in fulfilling the information needs; to train the faculty members and research scholars in using the electronic resources, however, also found that there was need to include more numbers of journals in the UGC Infonet Consortium.

4] Satpathy and Rout (2010) conducted a study under the title "Assess and evaluate the use of e-resources by the faculty members of C.V. Raman College of Engineering (CVRCE), Bhubaneswar", the paper examines the exposure of faculty members to e-resources. Besides, it aims to highlight the problems encountered by the users and suggests some remedial measures for their improvement. The authors investigate the use of e-resources by the faculty members of CVRCE through a survey based on a structured questionnaire. Various statistical methods have been used for data analysis. The study confirmed that faculty members are aware of the e-resources and various types of e-resources, e-database, and e-journals. It suggests for the improvement in the access facilities with high Internet speed and subscription to more e-resources by the Central Library of CVR.

5] Renwick, (2010) conducted a survey to determine faculty's knowledge of electronic resources, access to a computer, use of electronic resources (both number and frequency) available at the Medical Sciences Library (MSL), and the areas of training needed and to identify areas for further research. A survey was administered to faculty in medicine, pharmacy, dentistry, and veterinary sciences at The University of the West Indies. The questions covered computer literacy, computer access and location, knowledge and use of electronic resources, and training needs. The result of the study is elaborate as the response rate was 70%, of whom 97% were computer users. Seventy-three percent used computers daily, and 82% felt that their computer literacy level was average or beyond. Overall, it was

found that faculty had high awareness of the electronic resources made available by the MSL but low use of MSL-specific resources supporting the suggested problem of underutilization. Many respondents felt that e-resources were important, and, though many felt that they were competent users, 83% were self-taught and many still expressed a need for training. Over 60% felt that a workshop with a hands-on component was the preferred format for training. It was recommended that there be greater promotion of the library's e-resources.

6] **Ansari and Zuberi (2010)** conducted a study under the title "Use of electronic resources among the Academics at the University of Karachi", to explore the purpose for using the e- resources and to ascertain the satisfaction level of academics with e-resources. The present study was conducted through the questionnaire method. A well structured questionnaire was developed, consisting of 13 questions and distributed among the research scholars of the institute. Stratified random sampling was used to select participants. The study explores that a majority of the academics have computer skill that facilitate the use of e-resources, although a majority have little knowledge of e-resources, which is not a positive aspects of the finding. Lack of knowledge and facilities are the main reason for not using the e-resources. Some suggestions have been suggested that each department should have well equipped computer lab and qualified IT experts should be provided to solve the problems of networking and hardware. The library should also purchase offline electronic resources.

7] Kanniyappan, Nithyanandam, and Ravichandran (2008) the main objective of this article entitled "Use and impact of e-resources in academic and research environment: a case study" is to find out the use of different type of e – resources

and services and their impact on the academic development of faculty members Anna University library, Chennai. 180 questionnaires were distributed among the faculty members of engineering and technology out of which 150 were analyzed for present study .Result found that all the respondents use computers and online services. Majority of them use email, internet, OPAC systems and online journals. A good number of respondents feel that printed journals will not become obsolete in future .Most of the faculty members are aware of e-resources and they are being used frequently for the teaching purpose.

8] Kaul and Verma (2009) conducted the study under the title "Use of Electronic Information Resources: A Case Study of Thapar University". This paper is an attempt to study the issues like use of electronic information resources, its impact on the collection of print and electronic journals its awareness among the users, and the places where the users are accessing these resources. A survey was conducted in the academic year 2006-07 at the Thapar University, Patiala. A total number of 504 users from the undergraduate, postgraduate, research scholar and faculty members were selected and their response was obtained with the help of questionnaire. The findings show that users from all these categories were using e-resources; the awareness about e-resources encourages. Users to use such resources to the maximum; and the users are using computer centre and hostels more for accessing the information. The impact of e-resources was visible from the decrease in number of printed Journals in comparison to the increase in number of electronic journals. The use of e-journals has increased Manifold. The printed material is being quickly replaced by the electronic resources.

9] Oduwolle and Oyewumi (2010) conducted a study to examine accessibility and use of web based electronic databases on health internetwork access to research

initiatives (HINARI) portal by the physicians in the Neuropsychiatric hospital, Aro- a psychiatry health institution in Nigeria. The survey was based on the questionnaire. 28 questionnaires were distributed to the respondents out of which 20 questionnaire were return back. The result of the study revealed that majority 60% of the Physician access the portal once every two weeks from the internet cafes in and around the institution. Pubmed is widely used databases in HINARI Portal. The study recommends the development of a library portal/gateway and the sitting up links between the resources to which they subscribed.

10] Birdar, Rajshekhar and Kumar (2008)", explore, university, student and Teacher use of search engines for retrieval of scholarly information the main objective are to examine the use of search engines ,use of popular search engines and also to know the method of learning search strategy by the student and faculty in the university environment , Result of the present study shows that 100% of the student and 97.9%of faculties used search engines for retrieval of information on the internet Google , Yahoo receive the highest overall ratings , study reveals that majority for respondent take help message of search engines to learn the search strategy .

11] Khuddair and Cooke (2008) conducted a study under the title "Health care personnel use of e-information source in Riyadh Governmental hospital" to assess the use of e-information sources by the health care personnel in the Kingdom. A Questionnaire with open ended questions was designed to collect data from 11 governmental hospital and centers in Riyadh. It identified a range of the problems and obstacles that impact on the use of electronic information sources. Some obstacles to have been identified including health personnel were overwhelmed

with work load, lack of information skills, low level of information literacy, lack of information policy. The identification of these difficulties opens a way for the development and improvement of current situation.

12] Lohar and Roopashree (2006) conducted a survey, The objectives of the study were to know the availability of different types of electronic resources in B.I.E.T. Libraries; the use of different types of electronic resources by the faculty members; and the purpose and utilization of the electronic resources by the faculty members; in addition to find out the hindrances faced by the faculty members while accessing and using electronic resources and to observe the impact of electronic resources over the traditional one. Total 60 questionnaires consisting of 13 questions were distributed among the faculty members and the required data was collected. The findings of the study were that only 10% of the faculty members have more than 25 years of experience in teaching; majority of respondents (26.67%) were using electronic resources once in a week; and 35.09% of faculty members are using electronic resources for finding relevant information in their area of specialization; majority 55(42.64%) of the respondents used internet and 30 persons (23.26%) used CD-ROMs. The information available in electronic resources was said to adequate; regarding the hindrance of accessing the electronic resources 22(27.85%) stated that too much information retrieved was the main barrier in using electronic resources; majority of respondents 42(30.66%) stated "access to current up-to-date information" as a benefit of using electronic resources and majority of respondents 21(23.33%) faced problems due to lack of

timing and 19(21.11%) faculty members indicate lack of training as the main problem in using electronic resources.

13] Sharma and Guru Gobind Singh (2009) conducted a study under the title "Use of impact of e-Resource at Guru Govind Singh Indraprastha university (India): A case study to examine the existence of various e- Resource database in university library and also highlight the preference and importance of online resources among the teachers and research scholars. The use e-Resources is very common among teachers and research scholars who are dependent on e-Resources to get the desired and relevant information .It is also observed that the availability of e- Resource on the campus is almost sufficient for all the existing disciplines but the infrastructure to use these resource is no adequate and can hidden the ability to meet the requirements of users.

14] Manhas and Rajeev (2008) conducted a study under the title "Use of internet and electronic resources in Dental College and hospitals of Punjab, India", to analyses the patterns of use of internet and electronic Resource for patient care, the internet skills of dentist and problem faced by them while using the internet and e-resource. The instrument used in the study was questionnaire and observation. The major finding was a majority of Respondent (70-80%) access the internet from the college's work place. While ,19.3% also access from the home ,42.6% of the Respondent use the internet and e- resource for finding health and dental science information , followed by patient care with 26.5% response email has been chosen as the most popular internet service and e-journal as the most popular e- resource with 95.3% and 63.7% response respectively :A majority of the respondent 71.3% feel fully satisfied with internet service and e- resource .A majority of

Respondent (80.2%) feel that the internet and e-resources that is only supplement of print resource.

15] Nikam and Pramodini (2007) conducted the survey under the title "Use of e-journals and Databases by the academic community of university, Mysore: a survey" to examine the utilization and satisfaction level of users with respect to the e-resources. Survey based questionnaire had been analyzed and presented. The result of the emergence of internet has revolution the models of accessing and dissemination of information. E-Resources particularly e-journals and databases are important initiatives that provide access to online journals and databases. The survey indicates the use in the marginal and scientist in Mysore university campus need constant guidance and training to maximum use of e-resources.

16] Rajeev Kumar and Amrit Pal Kaur (2005) conducted a study to analyze the use of the Internet and related issues among the teachers and students of engineering colleges of Punjab, India. A well structured questionnaire was distributed among the 960 teachers and students of all the engineering colleges of Punjab. The response rate was 84.2 percent. The present study demonstrates and elaborates the various aspects of Internet use such as frequency of internet use, most frequently visited place for internet use, purpose for which the Internet is used, about internet services, ways to browse the information from the internet, problems faced by the users and satisfaction level of users with the internet facilities provided in the colleges. The results of the survey also provided information about the benefits of the internet over conventional documents. It was found that the

internet has become a vital instrument for teaching research and learning process of these respondents. Some suggestions have been suggested to make the service more beneficial for the academic community of the engineering colleges.

17] Mahaptra (2006) conducted a study under title "Information needs of scientists and Engineers in Electronic environment: a case study". Questionnaire method was used to collect data. Total 130 questionnaires were distributed among scientists and engineers of a company. The study explores that habit of use of documents from the library by the Scientists engineers and technologies in electronic era. It was found that information needs and habits of library use by scientists were related the rank in the organization the online resources and services, and internet service and the most popular library service in electronic culture. The online journals, dictionary, directory were used for reference purpose. Various search engines were also used by engineers for quick searching of information in electronic era.

18] Dudzie (2005) conducted a survey based study to investigate the use of electronic resources by students and faculty of Ashesi University, Ghana, in order to determine the level of use of the type of information accessed and the effectiveness of the library communication tools for information research. A questionnaire based survey was conducted, among 141 students of Ashesi University College it was found that 83% of students use Internet for accessing electronic resources. 64% of the student use, electronic resource for study purpose, full text information is mostly preferred by

students. They generally prefer Boolean logic for information searching on internet.

19] Naushad Ali P.M (2005) conducted a study under the title "The use of electronic resources at IIT Delhi Library: a study of search behaviors", to explore the use and perceived importance of the internet among the users; to determine the information resources on ERL and identify how important they are for their purpose; to understand barriers faced by the users while using EIS; and to assess the satisfaction level of users regarding infrastructure facilities and other aspects of EIS at IITD. The present study was conducted on a sample of 300 library users of the IITD. A total number of 325 questionnaires were administered among the users of IITD Library. About 300 filled questionnaires were returned back. Tools used for study were questionnaire, observation and informal interview. The questionnaire consisted of 18 questions and was designed and administered among the users to elicit their experience with EIS. The findings of the study were that Boolean logic and truncation are the most often used search facilities by IIT users; lack of printing facilities, terminals and trained staff are the major reasons that would discourage users from accessing the EIS; the survey also reveals that some 60 per cent of users face difficulties while browsing e-information; and out of 300 respondents, 284 (95 per cent) respondents agreed that EIS are very essential in IIT library system while 16 (5 per cent) users are not in favor of modern services.

20] Kubmar, Mallinath and others (2005) conducted a study under the title "use of the electronic resources has become the vital part of human life in 21st century.

It is clear from the study that how electronic resources are useful to research scholar and also problems in accessing and utilization of electronic resources 92.86% of respondents use e-resources for the purpose of their research work. 97.21% of user's used internet as e-resources. 45.71% 0f the respondents use FSTA database.75.71% of the respondents opened that access to the current information in only through electronic resources. 52.86% of the respondents stated that too much of information retrieved in one of the hindrance in using electronic resources. At the same time more than 70% of the respondents opened that standard of their work would suffer without e-resources.

21] Tenopir (2003) conducted a study under the title "Use of electronic library resources: An overview and analysis of recent research studies". The report summarized and analyzed more than 2000 recent research publications that focus on the use of electronic library resources and were published between 1995 and 2003. The studies used a variety of research methods, including observational, surveys, interviews, experiments and transaction log analysis. The tier 1 and tier 2 studies make several valid conclusions that shed light on the user's behavior with electronic resources. Both faculty and students use and like electronic resources. Print is still used for some reading and in part of research in almost every discipline. Print remains the most popular medium for books; e-books use is still in the very early stage. Subject experts use hyperlinks to view related articles, students use hyperlink is less clear. College and high school students use the internet more than that library for research and many believes they are more experts at searching than their teachers.

22] **Hayati and Alijani (2005)** conducted a study on six search engines namely AltaVista, Excite, Google, Hotbot and Lycos to compare and evaluate in terms of their search capabilities, (i.e. duplicate, false drops, mirror sites, dead links) and retrieval performances from the reference list of central library of Shiraz University the questionnaire were distributed to students at the time when they were present at the reference desk. The finding of the study shows that 70% of respondents said that Google showed the best performance followed by AltaVista.

23] Joten, Devi Singh and Raychaudhury (2009) conducted a survey under the title "Use of internet based e-resources at Manipur university: a survey", to examine the utilization purpose, difficulties and satisfaction level of users about internet based e- resource services provided by the library. A structured questionnaire was randomly distributed among 800 users of the library comprising of PG students, research scholars, teachers and other non teaching staff members during Aril 2006, April 2007.Find that low speed internet access, erratic power supply and lack of required full text journals are problem with regards to the use of internet based e-resources.

24] Verma, Bhatnagar, Mahawar and Bhatnagar (2010) conducted a study on the title "Use of Electronic resources in the library of Sikkim Manipal Institute of Technology (SMIT), Sikkim: A study". To highlights the use of e-resources by the faculty members of computer science department in SMIT Library. The purpose of seeking information, formal and informal sources used by faculty in searching the relevant information is studied in the paper. it also discuss frequency of their visit to the library and tool used for searching information .The role of library

professionals in helping faculty for finding information is also touched upon. The suggestions given by faculties are also discussed.

REFERENCES

01.Thanuskodi, S and Ravi, S (2011). Use of Digital Resources by faculty and research Scholars of Manonmaniam Sundaranar University, Trinelveli, DESIDOC, *Journal of Library And Information Technology*, 31(1), 25-32.

02. Shukla, Praveen and Mishra, Rajani (2011). Use of e- Resources by the research scholars of institute of technology, Banaras Hindu University, India. *Researcher World journal of Arts, Science and Commerce,* 2(2), 184-193.

http://www.researchersworld.com/vol2/issue2/Paper_17.pdf

03. Parameshwar, S.and Patil, D. B. (2009). Use of the Electronic resources by Faculty members and Research Scholars in Gulbarga University, Gulbarga: a survey. *SRELS journal of Information management, 46(1),* 57-63.

04. Satpathy, Sunil Kumar and Rout, Biswanath (2010). Use of E-Resources by the Faculty Members with Special Reference to CVRCE, *Bhubaneswar. DESIDOC Journal of Library & Information Technology*, 30(4), 11-16.

05. Renwick Shamin. (2009). Knowledge and use of electronic information resources by medical sciences faculty at The University of the West Indies. *DESIDOC Journal of Library & Information Technology*, 29(2), 67-73

06. Ansari, Munira Nasreen &Zuberi,Busha Adeeb(2010).Use of electronic resources among the Academics at the University of Karachi. *Library philosophy and practice, Annual Volume*. Retrived from

http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1398&

07. Kanniyappan, E., Nithyanandam,K.and Ravichandran,P.(2008).Use and impact of e-resources in an academic and research enviorment:a case study. *Kelpro Bulletin,* 12(1), 27-36.

08. Baljinder Kaur and Verma, Rama Use of Electronic Information Resources:A Case Study of Thapar University. *DESIDOC Journal of Library and Information Technology*, 2 (2), 67-73.

09. Adebambo Adewale Oduwole, Olatundun Oyewumi,(2010). Accessibility and use of web-based electronic resources by physicians in a psychiatric institution in Nigeria Program: electronic library and information systems, 44 (2), *109-128.*
http://www.emeraldinsight.com/journals.htm?articleid=1858341&show=htm

10. Birdar,B.S, Rajshekhar,G.R and Sampthy Kumar, B.T (2008). Use of search engines for retrieval of scholarly information: A case study. *IASLIC Bulletin,* 53 (4), 212-222.

11. Khudair,Ahmad A. and Cooke, Louise (2008). Health care personnel's use of e-information sources in Riyadh governmental hospitals. *Journal of Librarianship and Information Science*, 40 (3), 207-217.

12. Lohar, M.S. and T.N., Roopashree. (2006). Use of electronic resources by faculty members in B.I.E.T., Davanagere: A survey. *SRELS Journal of Information Management*, 43(1), 101-112.

13. Chetan Sharma and Guru Gobind Singh (2009). Use and impact of e-resources at Guru Gobind Singh Indraperastha University: A case study. *Electronic Journal of Academic and Special Librarianshi,* 10 (1)

http://southernlibrarianship.icaap.org/content/v10n01/sharma_c01.html.

14. Manhas, Rajeev (2008) .Use of the Internet and Electronic Resources for Dental Science Information: A Case Study. *Library Philosophy and Practice.* 1-8.Retrived from http://unllib.unl.edu/LPP/manhas.pdf

15. Nikam, Khaiser and Pramodini (2007). Use of e-journals and databases by the academic community University of Mysore: A survey. *Annals of Library and Information Studies*,54 (1), 19-22.

16. Rajeev Kumar and Amrit Pal Kaur (2005) Internet and its use in the engineering colleges of Punjab, India case study. *Weblogy*, 2 (4)

17. Mahapatra, Gayatri (2006). Information needs of Scientists and engineers in Electronic environment: a case study. *Annals of library and Information Studies*, 53 (4), 173-183.

18. Perpetua S, Dudzie (2005).Electronic resources: access and usage at Ashesi University College. *Information System.22 (5),* 290-297.

19. Naushad Ali P.M (2005). The use of electronic resources at IIT Delhi Library: a study of search behaviours. *The Electronic Library*, 23 (6), 679-700.

20. Kumbar, Mallinath and others (2005). Use of the electronic resources by research scholars in CFTRI, Mysore: A study. *ILA bulletin*, 41(3), 16-20.

21. Tenopir, Carol (2003).Use and users of Electronic Library Resources: an overview and analysis of recent research studies.

http://www.clir.org/pubs/reports/pub120/pub120.pdf

22. Hayati, Z., and Alijani, R. (2005). The web search engines and general reference question. *Iranian journal of Information Science*, 3(1), 18-32.

23. Joteen, R.K., Madhuri Devi Singh and Raychoudhary, Arup (2009). Use of internet Based e-resources at Manipur University: A survey. *Annals of Library and Information Studies*, 56 (1). 52-57

24. Verma,Shilpi, Bhatnagar, Tanushree, Mahawar, K. L and Bhatnagar, Roheet (2009). Use of electronic resources in library of Sikkim Manipal Institute of Technology (SMIT),Sikkim.ICAL,Retrived from

http://crl.du.ac.in/ical09/papers/index_files/ical-114_102_231_2_RV.pdf

Chapter-3

Research Methodology

Research Methodology

Where is the earlier chapter are related to conceptual framework i.e. introduction and review literature respectively the present chapter in related with the method of research which has been used in their study. The appropriate method of research in that which fully consider the structure and objective which give a right direction to the study and keeping them in mind researcher do his work. The methodology used in the study and has been discussed under the following headings.

- Statement of the problem
- Objective of the study
- Hypothesis
- Methodology
- Tools used for the study
- Sample population
- Variable taken
- Pilot survey
- Data collection procedure
- Data Analysis method

Statement of The Problem

To achieve the goal and objective of the study a clear and defined statement of the problem is needed. In the present study is "**Use of E-Resources by the Research Scholars and Scientists in ITRC (Indian Institute of Toxicological Research), Lucknow: a survey**"

Objectives of The Study

Every work is incomplete in the lack of the objective. The work done in lack of the objectives is always meaningless. So for appropriate and meaningful work an objective is necessary the objectives determined in the case of study are:

- To find out the type of an information resources used currently by the Research Scholars and Scientists in ITRC.
- To examine the place of accessing E-Resources.
- To know how often the E-Resources used
- To know most valuable using E-resources
- To know the method of searching E-Resources and retrieval performance.
- To find out the purpose of using E-Resources by the research Scholars and Scientists in ITRC
- To identify the frequency used search engine and advance search method for retrieving the information
- To understand the satisfaction level and the problem faced by the Scientists and Research Scholars
- To identify the annual budget allocation of books, periodicals and E-journals.
- To identify the policies adopted by the library for selection of e-resources.

- To know the problem facing by the Research Scholar and Scientist in addition library to provide e-resources.

Hypotheses

There is no doubt that hypotheses are important and indispensable tools of a scientific study. In lack of hypothesis is no one scientific study can be completed. Hypotheses are the working instrument of the theory, which can be tested and shown to be probably true and false. It is the hypotheses which make the way for solution of the problem.

Best and Khan, 2003, defined hypotheses in a formal affirmative statement pre-directing a simple research outcome, a tentative of relationship between two or more variable"

- Maximum number of Research Scholars and Scientists in ITRC are aware about the existing E-Resources.
- Scientists are using E-Resources more than Research Scholars for their work.
- Both Research Scholars and Scientists are mostly using E-journals for their research work in ITRC.
- Both Research Scholars and Scientists are satisfied with E-Resources provided by the library.
- The budget of E-journals allocation is more than others in ITRC.

Methodology

Methodology has its importance in scientific investigation because objectivity in any research investigation cannot be obtained unless it is carried out in a very systematic and planned manner. Scientific investigation involves careful and proper adoption of research design, use of standardized tools, and test, identifying adequate sample by using appropriate sampling techniques, sound procedures for collecting data and there after careful tabulation of the data and the use of appropriate statistical techniques for analyzing the data. There are several survey techniques available for user studies such as questionnaire, observation, interview and documentary technique.

Variable Taken

In order to get meaningful conclusion the following variables are analyzed in detail:

- Scientists
- Research scholars
- Librarian

Tools and Techniques Administerd

In order to conduct a qualitative and quantitative analysis a combination of the questionnaire method along with observation and interview is used as tools for collecting the necessary data.

Questionnaire is a tool to collect data from large and widely scattered population groups. It is called the heart of survey operation. Goods and Halt state, Questionnaire refers to a device for scoring answer questions by using a form, which the respondent fills himself.

Pilot Survey

The investigator conducted a pilot survey by interview method among 10 (6=Research scholars and 4= Scientists) and in this interview investigator asking the question which has been taken in the questionnaire. The pilot survey helped substantially in modifying the questionnaires, which further helped in collection of data with more accuracy and completeness.

Sample Population

The collections of data from the entire population of Scientists and Research Scholars were enough to be covered in a single study. Therefore, the total numbers of questionnaire distributed are 70(40 for Research scholar and 30 for Scientist) including Scientists and Research scholars of the ITRC, Lucknow. A total number of 64 filled in questionnaires were returned back. The investigator selected 58 questionnaires for the analysis. 08 questionnaires were not completely filled.

Data Analysis

The data collected through questionnaire, observation and interview were organized and tabulated by using statistical method.

Chapter-4

Data analysis & Interpretation

Data Analysis and Interpretation

This chapter deals with the analysis and interpretation of the data collection through questionnaire method. The collected data organized and tabulated by using statistical method, tables and percentage. The questionnaires were distributed among the Research Scholars and Scientists in ITRC, Lucknow. The total strength of the respondents of this study is 280. Investigator distributed 70 questionnaires to the Research Scholars and scientists. Out of which 64 questionnaires returned back. The investigator took 58 questionnaires for the analysis, because 06 questionnaires were not properly filled.

Table -1

Population studied

S.No.	Respondent	Questionnaire Distributed	Questionnaire Returned	Response Rate
1.	Research Scholars	40	32	80%
2.	Scientist	30	26	86.67%
	Total	**70**	**58**	**82.857%**

It is evident from the table that out of total respondents of ITRC, 70 questionnaires were distributed to research scholars and scientists, 58 questionnaires were properly filled that is taken for the analysis.

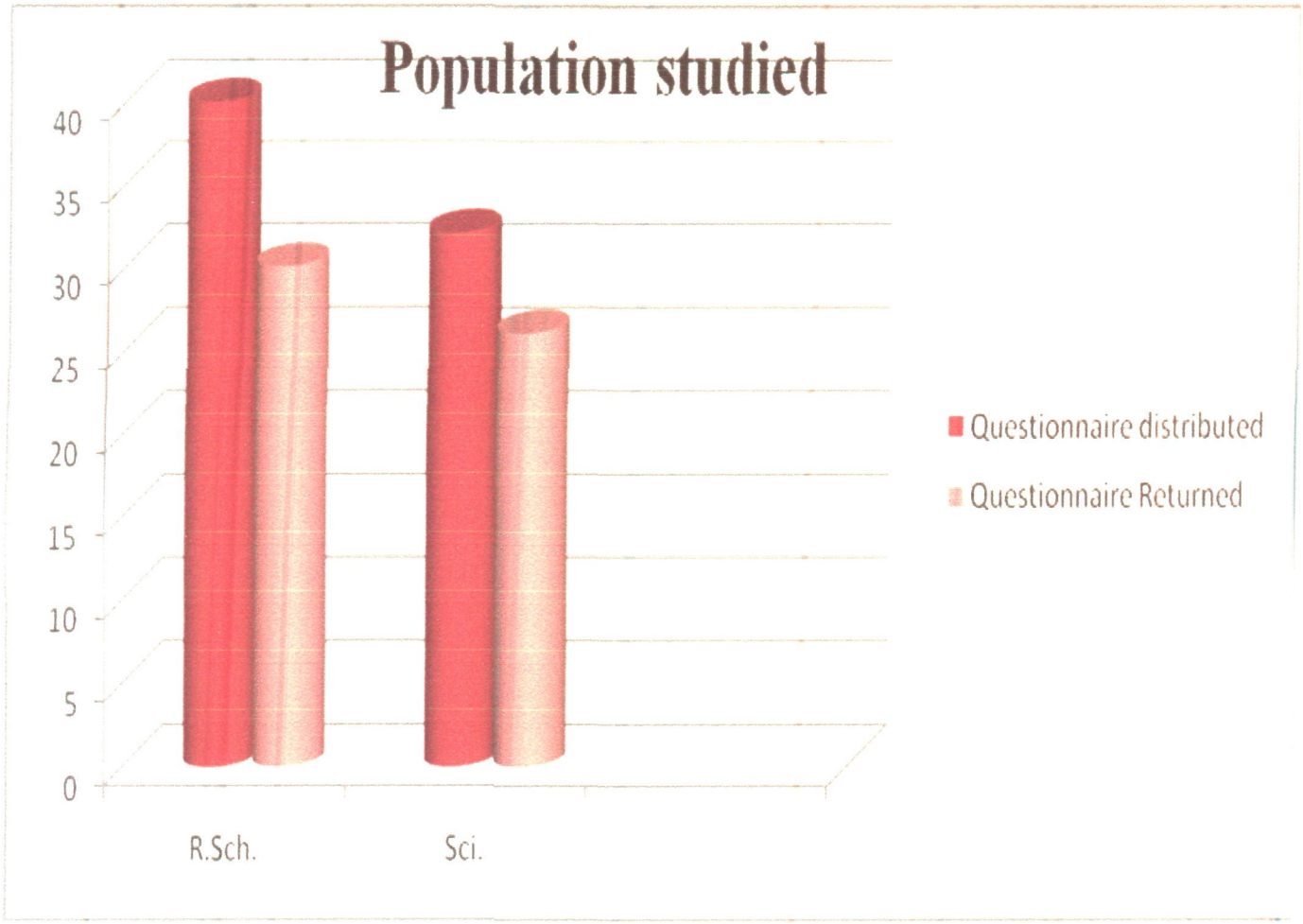
Population studied
40
35
30
25
20
15
10
5
0
R.Sch.
Sci.
Questionnaire distributed
Questionnaire Returned

Fig: 1

Table -2

Frequency of visiting the Library

S.No.	Frequency	No. of respondents	
		Research Scholars	**Scientists**
1.	Daily	56.25% (18)	- -
2.	Weekly	18.75% (06)	26.923% (07)
3.	Monthly	06.25% (02)	15.385% (04)
4.	Occasionally	18.75% (06)	57.692% (15)
	Total	**100%**	**100%**

The above table shows that most the research scholars visit the library daily (56.25%) and we also find that few research scholars visit the library monthly (6.25%) on the other hand scientist mostly visit the library occasionally and few members of scientist visit the library monthly (15.385%).

Awareness of the E-Resources

From the collected data it can be observed that 100% of the Research scholars and Scientists of ITRC are aware of the e-resources.

Frequency of Visiting The Library

Fig:2

Table -3

Use of E-Resources

Resources	Ranks																	
	Rank-1		Rank-2		Rank-3		Rank -4		Rank-5		Rank-6		Rank-7		Rank-8		Rank-9	
	R.S.	Sci.	R.S.	Sci.	R.S.	Sci.	R.S.	Sci.	R.S.	Sci.	R.S.	Sci.	R.S.	Sci.	R.S.	Sci.	R.S.	Sci.
E-book	06.25% (2)	3.846% (1)	15.625% (5)	- -	12.50% (4)	3.846% (1)	- -	15.385% (4)	28.125% (9)	11.538% (3)	25.00% (8)	69.231% (10)	9.375% (3)	23.077% (6)	3.125% (1)	- -	- -	
E-Thesis	3.125% (1)	-	-	-	-	-	9.375% (3)	3.846% (1)	12.50% (4)	11.538% (3)	28.125% (9)	7.692% (2)	21.875 % (7)	15.385% (4)	12.50% (4)	46.154% (12)	12.50 % (4)	15.385% (4)
E-Encyclopedia	6.25% (2)	-	9.375% (3)	-	15.625% (5)	11.538% (3)	21.875% (7)	7.692% (2)	15.625% (5)	15.385% (4)	12.50% (4)	-	6.25% (2)	-	12.50% (4)	19.231% (5)	-	46.154% (12)
On Line data base	3.125% (1)	-	30.875% (7)	23.077% (6)	15.625% (5)	42.308% (11)	31.25% (10)	15.385 % (4)	9.375% (3)	7.692% (2)	6.25% (2)	7.692% (2)	6.25% (2)	3.846% (1)	-	-	6.25% (2)	-
E-Mail / Discussion Group	3.125% (1)	-	-	-	6.25% (2)	-	12.50% (4)	11.385% (3)	25.00% (8)	26.923% (7)	9.327% (3)	11.538% (3)	12.50% (4)	15.385% (4)	15.625% (5)	15.385% (4)	15.625% (5)	19.231% (5)
E-Journal	78. 125% (25)	96.154 % (25)	15.625% (5)	30.846% (1)	6.25% (2)	-	-	-	-	-	-	-	-	-	-	-	-	-
E- Newspaper	-	-	3.125% (1)	15.385% (4)	18.75% (6)	-	9.375% (3)	3.846% (1)	9.375% (3)	11.538% (3)	-	30.769% (8)	15.625% (5)	30.769% (8)	25.00% (8)	7.692% (2)	18.75% (6)	-
CD- ROM database	-	-	6.25% (2)	7.692% (2)	12.50% (4)	15.385% (4)	6.25% (2)	30.7695% (8)	-	11.538% (3)	12.50% (4)	3.846% (1)	12.50% (4)	19.231% (5)	18.75% (6)	3.846% (8)	31.10% (10)	7.693% (2)
Online references	-	-	25.00% (8)	46.154% (12)	15.625% (5)	38.462% (10)	9.375% (3)	7.692% (2)	-	3.846% (1)	9.375% (3)	-	15.625% (5)	-	12.50% (4)	3.846% (1)	12.50% (4)	-

To know the use of E-Resources, table 3 shows that majority of the Research Scholars gave the first rank to e-journals (78.125%), followed by online references (25.00%) on the 2nd rank, CD-ROM database (31.25%) were the least used. On the other hand Scientists use e-journal (96.154) the most and e- encyclopedia (46.154%) the least.

Use of Internet

It is observed by the data which is collected through the questionnaire that 100% of the Research Scholars and Scientists used internet.

Table - 04

Purpose of using Internet

	Respondents	
	Research Scholars	**Scientists**
e-mail	100% (32)	96.159% (25)
News group	40.615% (13)	34.615% (9)
Browsing	75.00% (24)	69.231% (18)
Entertainment	15.625 (8)	-
Multiple answers are permitted		

From the above table we found that 100% of the research scholars used internet for e-mail purpose, followed by 75.00% for browsing purpose. Scientists also used internet for e-mail (96.159%) purpose, followed browsing (69.231%).

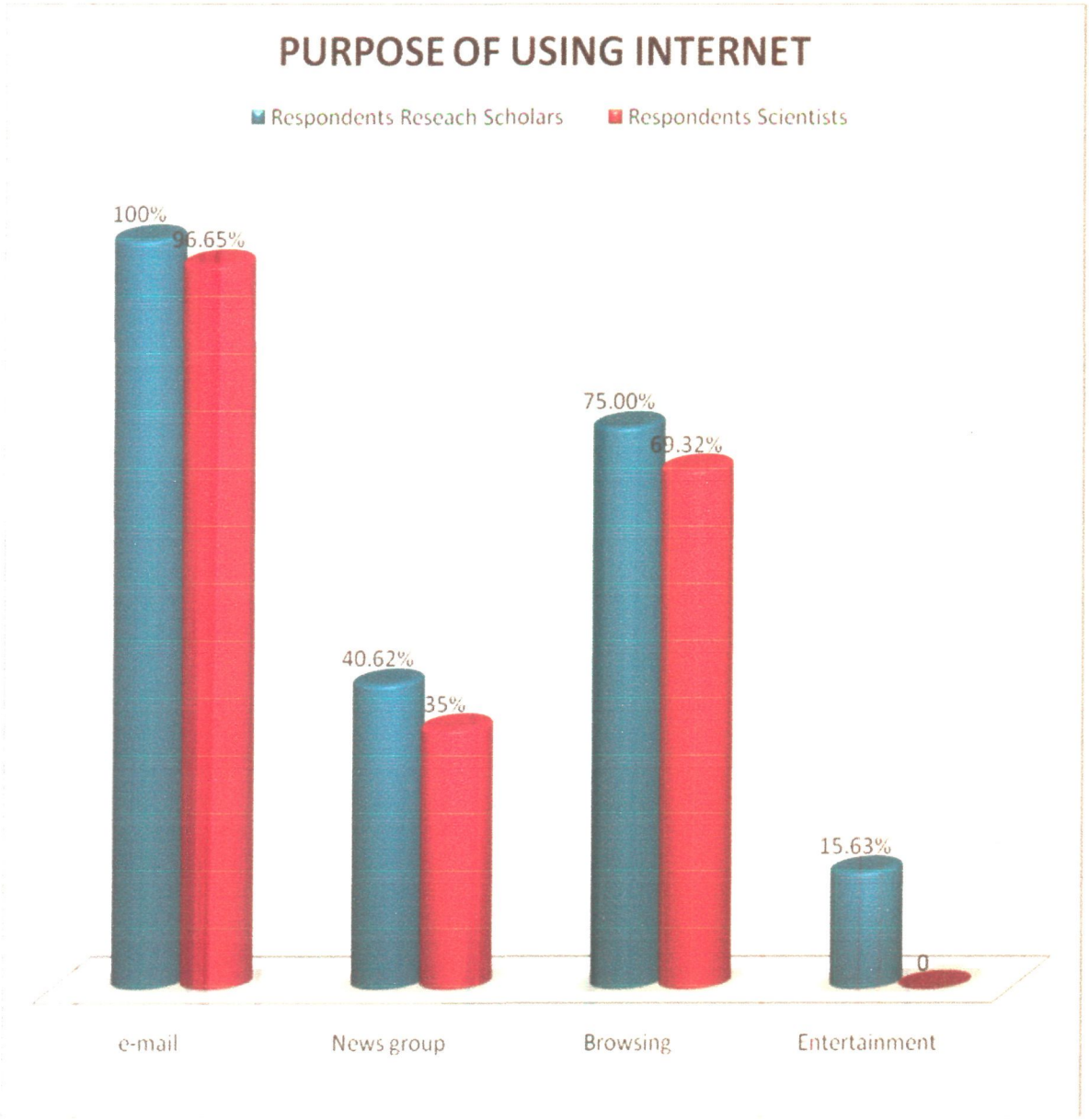
PURPOSE OF USING INTERNET
Respondents Reseach Scholars
Respondents Scientists
100%
96.65%
40.62%
35%
75.00%
69.32%
15.63%
0
e-mail
News group
Browsing
Entertainment

Fig:3

Table -5

Frequency of Using Search Engine

	Respondents	
	Research Scholars	**Scientists**
Google	100% (32)	100% (26)
Yahoo	53.125% (17)	84.615% (22)
Alta –Vista	6.25% (2)	-
Lycos	-	-
Excite	-	-
Multiple Answers are permitted		

The multiple answer table 5 shows that 100% of the research scholars and scientists both are used Google search engine and followed 53.125% of research scholars yahoo and 84.615% of scientist and others search engines are not used.

Frequency of Using Search Engine

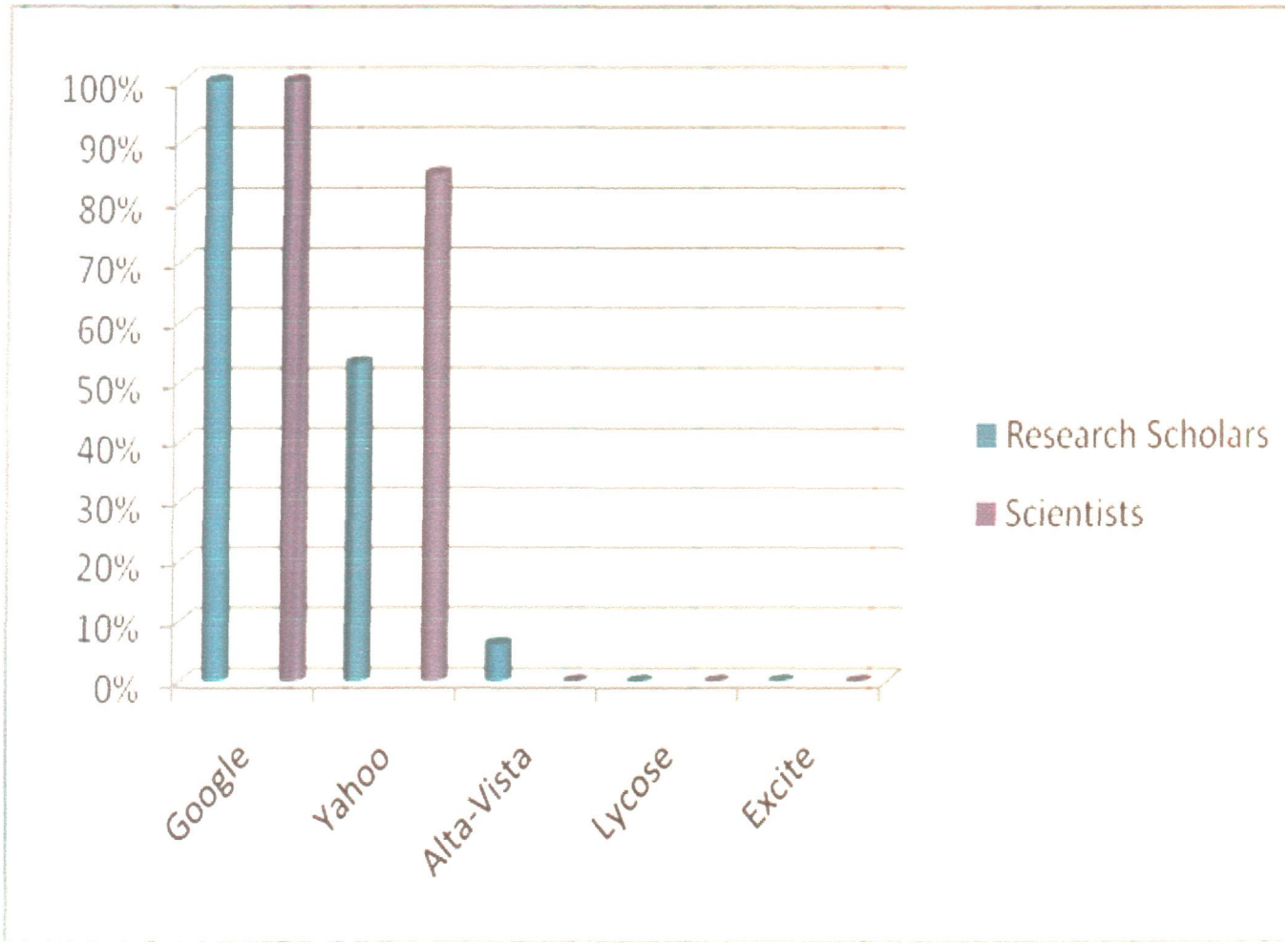

Fig:4

Table -6
Use of Advance Search Method

Methods	No. of Respondents	
	Research Scholars	**Scientists**
Boolean Operator	28.125% (09)	30.769% (08)
Truncation of Subject terms	15. 625% (10)	26.923% (07)
Phrase	34.375% (11)	34. 615% (09)
Weighed term search	21.875% (07)	7.692%) (02)
Total	**100%**	**100%**

From the table it is found that both the research scholars (34.375%) and scientists (34.615%) largely used 'phrase' an advanced search method. After that research scholars used Boolean Operators (28.125%) and scientist also used Boolean Operators (30.769%) for advanced search.

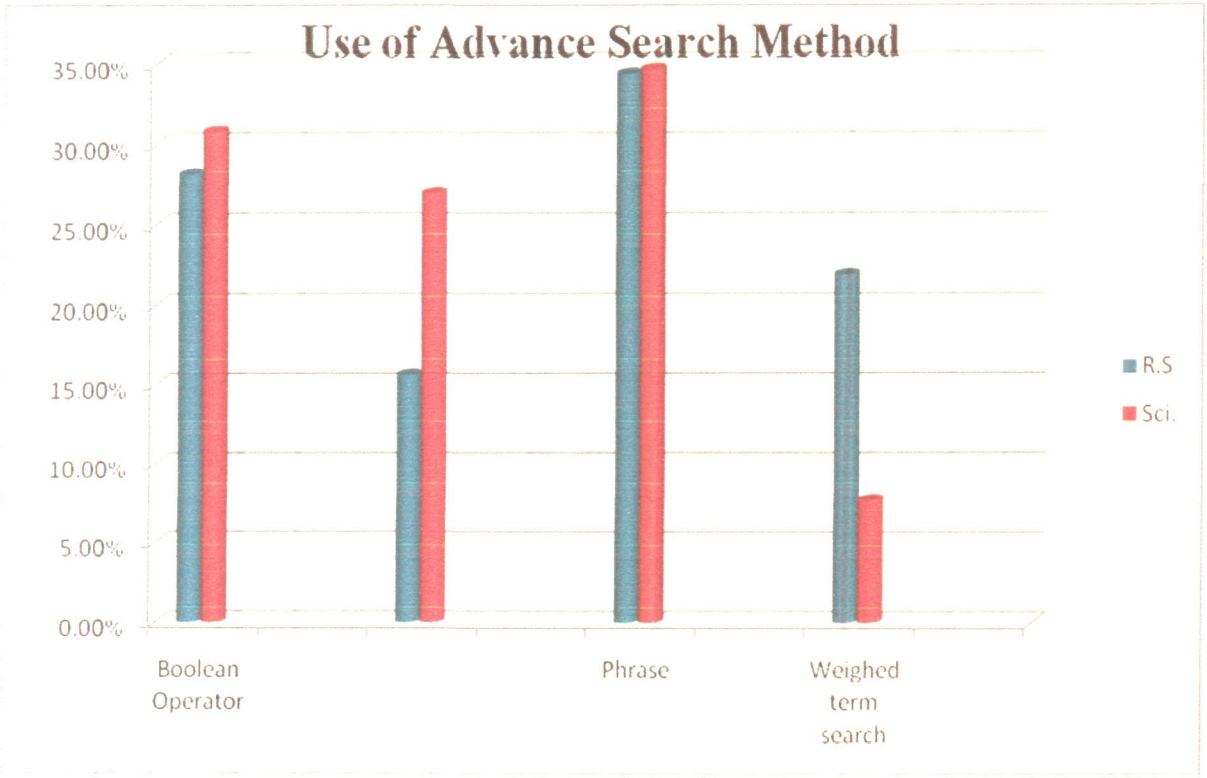
Use of Advance Search Method
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Boolean Operator
Phrase
Weighed term search
R.S
Sci.

Fig:5

Table - 7

Use of e-journals websites

S.No.	E-Journals Websites	Number of respondents	
		Research Scholars	Scientists
1	Jgate/info.india.com	46.875% (15)	42.308% (11)
2.	Elsevier.com	65.625% (21)	88.462% (23)
3.	Nature.com	68.75% (22)	84.615% (22)
4.	Kluwron.com	50.00% (16)	23.077% (6)
5.	Pub.acs.org	31.25% (10)	61.538% (16)
	Multiple answers are permitted		

The multiple answer table indicates that research scholars mostly used nature.com (68.75%) e-journal website on the other hand scientist mostly used Elsevier.com (88.462), followed by nature.com (80.4615%).

Time spent for accessing e- resources

It can be observed from the collected data that almost all the Research scholars and Scientists spent two or more than two hours in a day for accessing e-resources and internet tools.

Use of E-journals websites

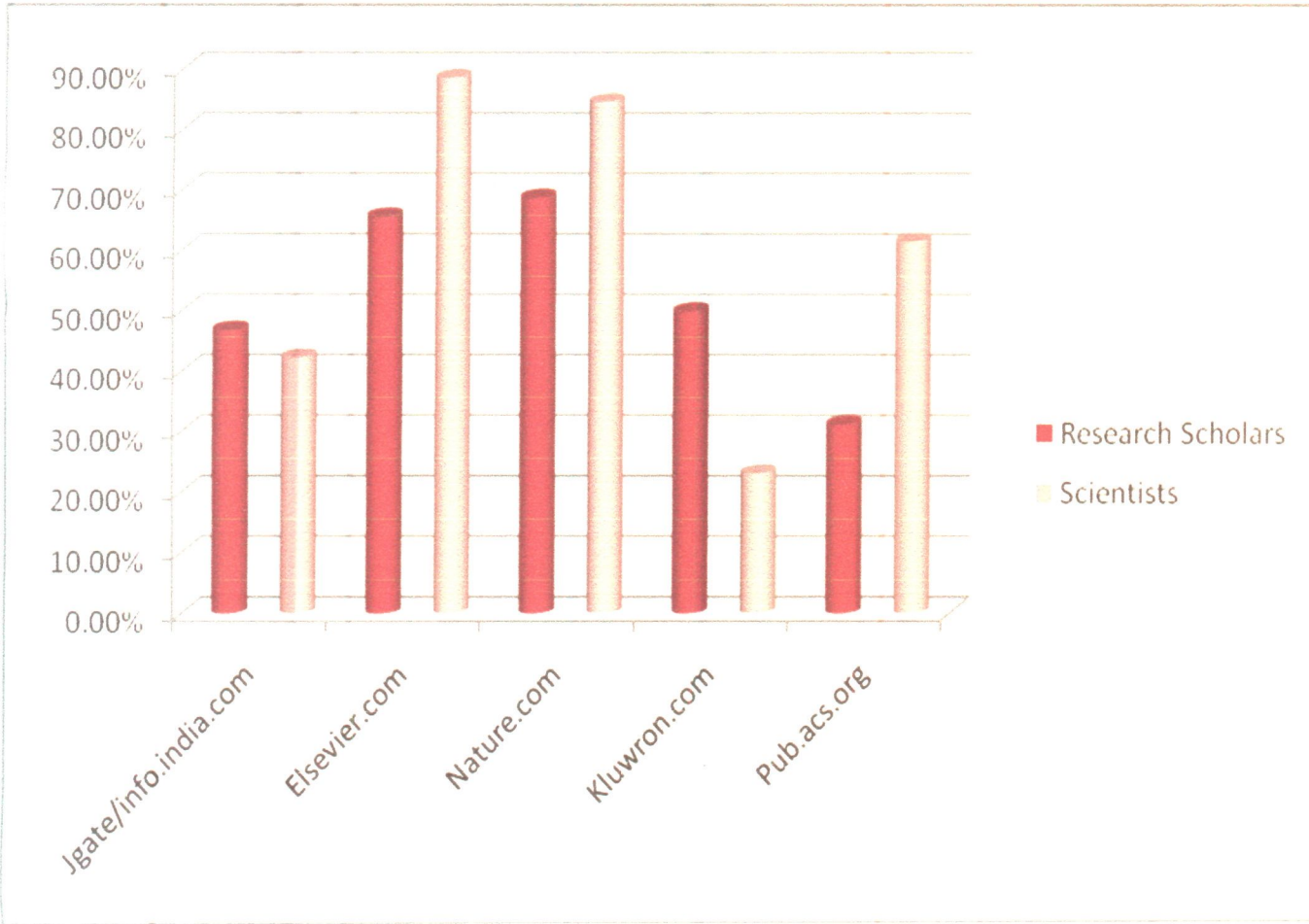

Fig:6

Table -8

Place of accessing E-Resources

Place	Number of Respondents	
	Research Scholars	**Scientists**
From Library	40.65% (13)	03.846% (1)
From Home	03.125% (1)	03.846% (1)
From Lab	56.250% (18)	92.308% (24)
Other	--	--
Total	**100%**	**100%**

The table 7 indicates that both the research scholars (56.250%) and scientists (92.308) are mostly accessing the e-resources from the lab. After the lab research scholars followed from the library (40.65%) but scientist do not follow others

Place of accessing E-Resources

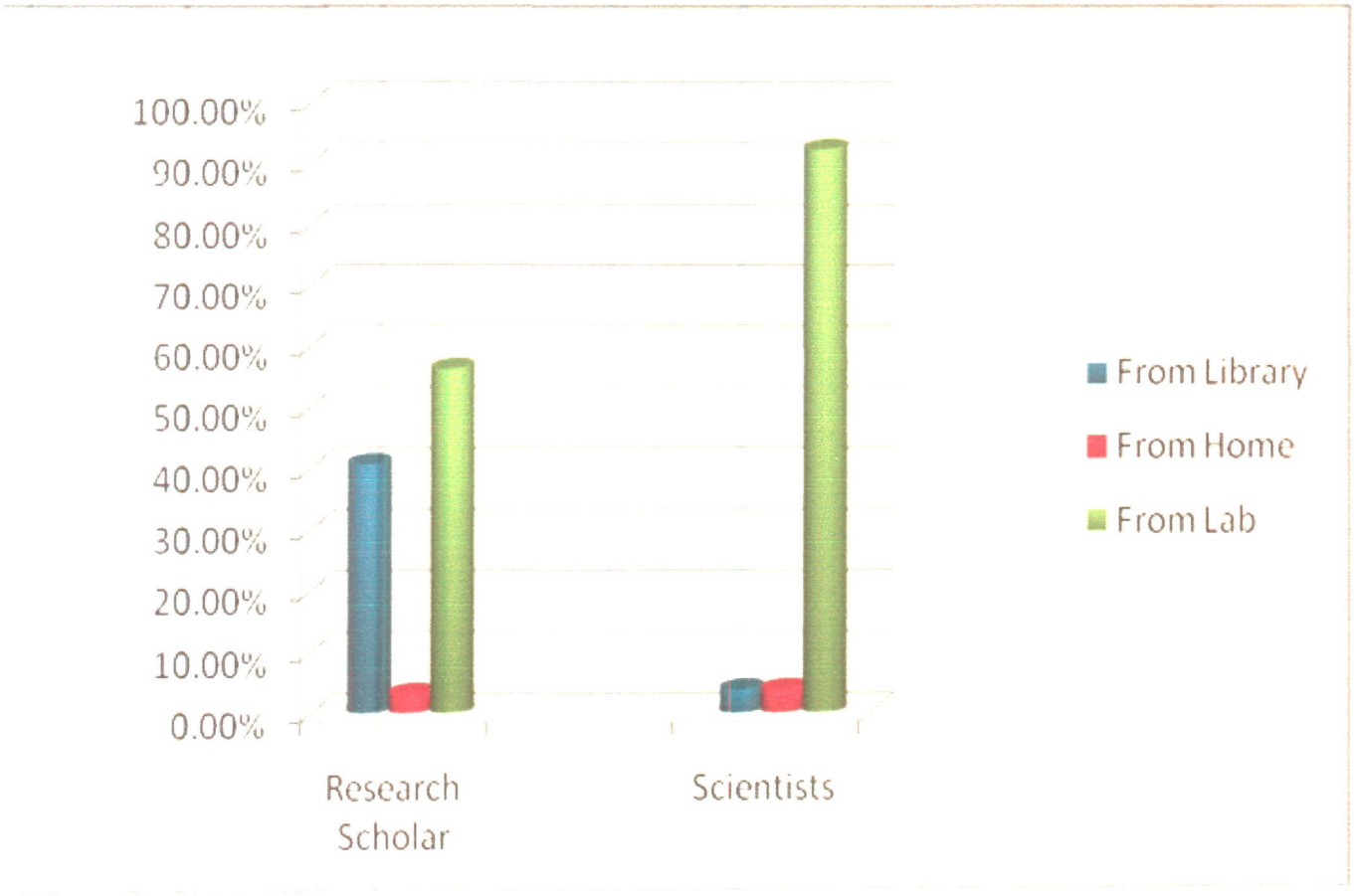

Fig:6

Table - 9
Frequency of Using E-Resources

Resources	Daily		Weekly		Monthly		Bi-monthly		Occasionally		Never	
	Research scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists
E-book	9.375% (3)	--	31.25% (10)	23.077% (6)	34.375% (11)	26.923% (7)	6.257% (2)	23.077% (6)	15.625% (5)	23.077% (6)	3.125% (1)	3.846% (1)
E- Journal	68.75% (22)	84.65% (22)	21.875% (7)	15.385% (4)	6.25% (2)	----	31.25% (1)	---	---	----	----	----
E- Mails	9.375 (3)	----	6.25% (2)	76.92% (2)	31.25% (10)	----	12.50% (4)	26.923% (7)	25.00% (8)	50.00% (13)	15.625% (5)	15.385% (4)
CD-ROM Databases	3.125% (1)	---	21.875% (7)	23.077% (6)	12.50% (4)	38.462% (7)	25.00% (8)	26.923% (7)	18.75% (6)	11.538 (3)	18.75 (6)	---
Online Database	46.625% (13)	53.846% (14)	18.75% (6)	42.308% (11)	31.25 % (10)	----	----	3.846% (1)	6.25% (2)	---	3.125% (1)	----
Online Reference Sources	43.75% (14)	42.308% (11)	12.50% (4)	53.846% (14)	15.625% (5)	3.846% (1)	12.50% (4)	---	6.25% (2)	----	9.375% (3)	---
E-Newspaper	34.375% (11)	26.923% (7)	12.50% (4)	38.462% (10)	18.75% (6)	19.231% (5)	9.375% (3)	11.538% (3)	12.50% (4)	---	12.50% (4)	3.846% (1)

Above table shows that most of the Research scholars (68.75%) and Scientists (84.65%) use E-journals daily and both followed by online database. On the other hand 18.75% Research scholars never used CD-ROM database.

Table -10

Purpose of using E-Resources

S.No.	Category	Number of respondents	
1		Research Scholars	Scientists
2	For study	93.75% (30)	15.385% (4)
3	To update knowledge	68.75% (22)	76.923% (20)
4	For Research work	96.875% (31)	96.154% (25)
5	For teaching	-	82.308% (24)
Multiple Answers are permitted			

For the purpose of using e-resources table 10 shows that the research scholars used e-resources for the research work (96.875%), followed by (93.7%) for study purpose. On the other hand scientist also used e-resources for research work (96.154%) and followed by (83.308%) for teaching purpose.

Purpose of using E-Resources

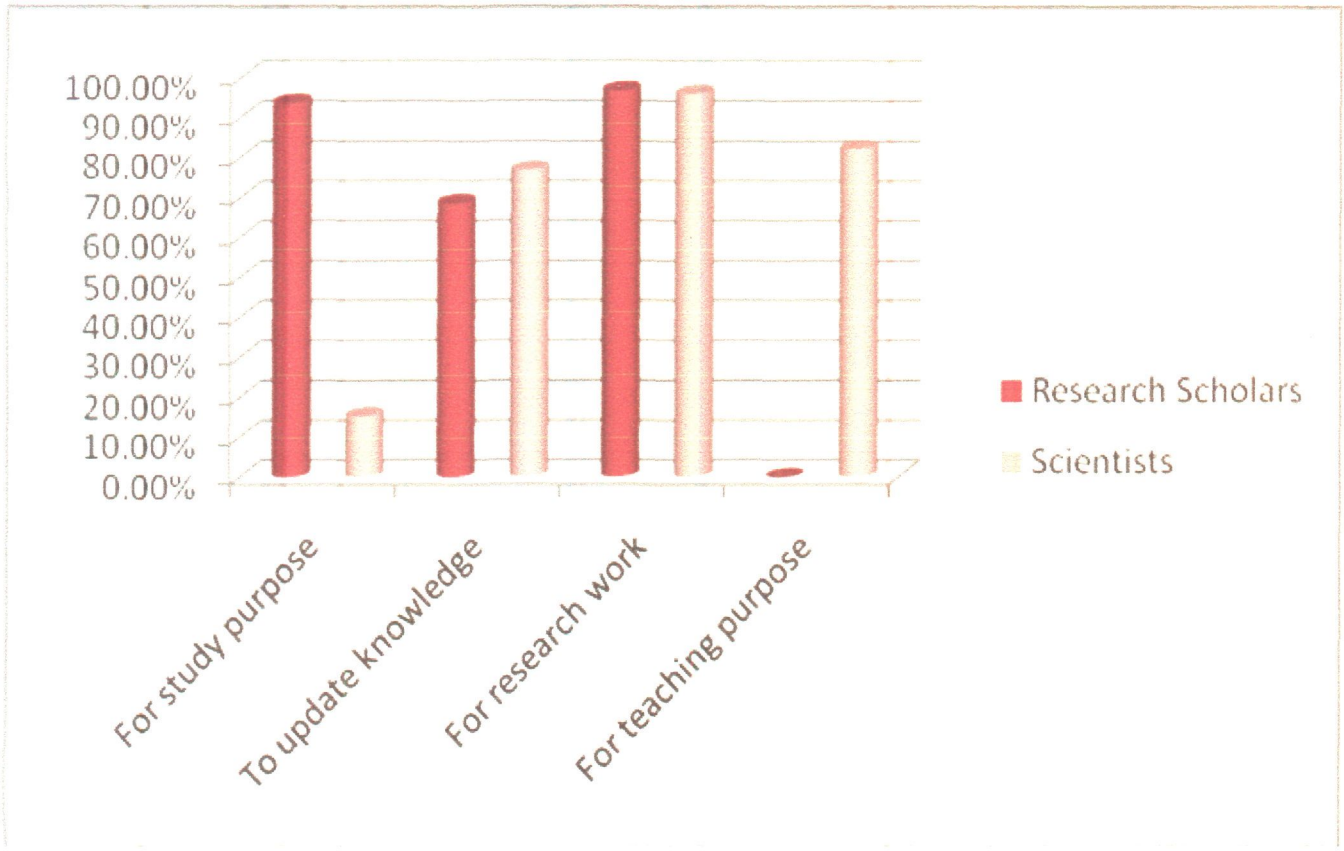

Fig:7

Table-11

Value of using E –Resource

Resources	Important		Not important		No response	
	Research scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists
E-Book	78.125% (25)	76.923% (20)	3.125% (1)	-	18.75% (6)	23.077% (6)
E- Newspaper	25.00% (8)	11.538% (3)	25.00% (8)	38.462% (10)	50.00% (16)	50.00% (13)
E-Thesis	46.875% (15)	30.769%) (8)	15.625% (5)	15.385% (4)	37.50% 12	53.846% (14)
E-Encyclopedia	59.395% (19)	46.154% (12)	----	11.538% (3)	40.625% (13)	53.846% (14)
CD-ROM Databases	56.25% (18)	(65.385%) (17)	---	----	14.75% (14)	34.615% (9)
Online Database	93.25% (30)	100% (26)	---	----	6.25% (2)	-
Online References	96.875 % (31)	100% (26)	----	----	31.125% (1)	---

According to Table 11, which clearly shows the value of various e- resources, 96.875% of the research scholars said that online references were important to them, while 25% said that e-newspapers were not important to them. Every scientist stressed upon the importance of online database and online references while 38.462% said that e – newspaper were not important to them.

Table -12

Use of databases for literature search

Databases	Number of respondents	
	Research Scholars	**Scientists**
Chemical Abstracts	43.75% (14)	53.846% (14)
Biological Abstracts	68.75% (22)	69.321% (18)
Scifinder	21.875% (7)	38. 462% (10)
R &D Insight	50.00% (16)	30.769% (8)
Web of science	34.375% (11)	80.769% (21)
Multiple answers are permitted		

Above table clearly shows that most of the research scholars used Biological Abstracts (68.75%) for literature search, followed R&D Insight (50.00%). Scientists mostly used Web of Science (80.769%) for the literatures search, followed Biological Abstracts (69.321%).

Use of databases for literature search

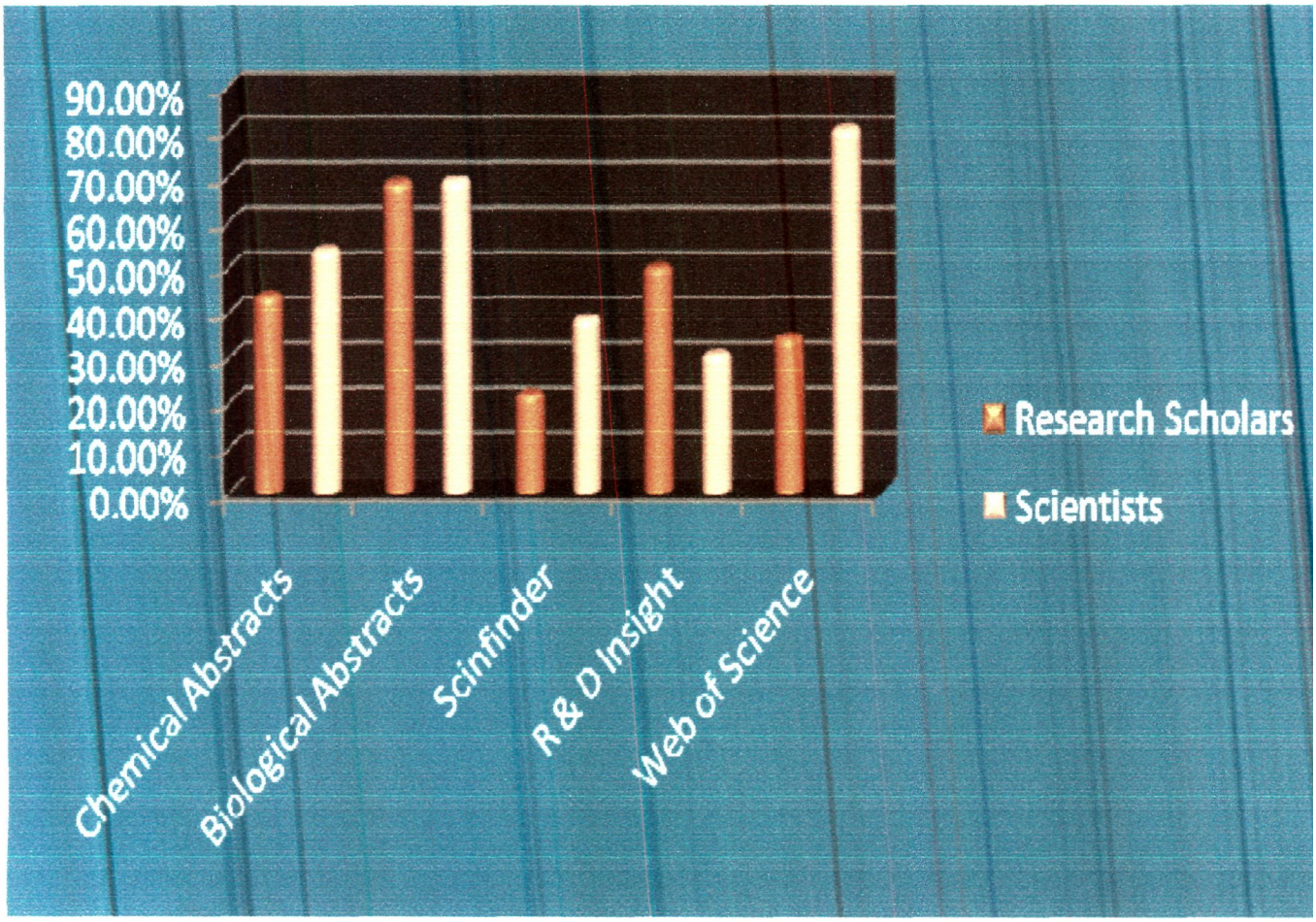

Fig:8

Table - 13

Search method used to locate E-Information

S.No.	Methods	Never		Sometime		Often	
		Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists
1	Author	6.25% (02)	---	68.75% (22)	42.308% (11)	25.00% (08)	57.692% (15)
2	Keyword	----	3.846% (01)	37.50% (12)	7.692% (02)	65.50% (20)	88.462% (23)
3	Date of Publication	21.875% (07)	15.385% (04)	62.50% (20)	62.385% (17)	15.625% (05)	19.231% (05)
4	Journals/ Book Title	9.375% (03)	7.692% (02)	40.625% (13)	34.615% (09)	50.00% (16)	57.692% (15)
5	Title of Articles	6.25% (02)	7.692% (02)	37.50% (12)	38.462% (10)	56.25% (18)	53.846% (14)

The table 13 clearly shows that both the Research scholars (65.50%) and Scientists (88.462%) 'Often' use keywords to locate e-information. 21.875% of Research scholars never used date of publications whereas Scientists 15.385% never used date of publications to locate relevant e-information.

According to the table 14, which clearly shows the retrieval performance of e-information, 65.625% of the research scholars were satisfied with the indexes of which they said were good.76.923% of the scientists marked Library Databases as good. Both scientists (42.31%) and research scholars (28.16%) marked No Response in the Union Catalogue category.

Table -14

Retrieval Performance of E-Information

Sources	Excellence		Good		Fair		Average		No response	
	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists
Library databases	40.625% (13)	7.692% (02)	53.125% (17)	76.923% (20)	3.125% (01)	15.385% (04)	3.125% (01)	---	---	---
Directories	15.625% (05)	3.846% (01)	21.875% (07)	23.077% (06)	37.50% (12)	38.462% (10)	21.875% (07)	30.769% (08)	3.125% (01)	3.846% (06)
Indexes	3.125% (01)	15.385% (04)	65.625% 21	65.387% 17	15.625% 05	7.692% 02	15.625% 05	11.538% (03)	---	---
Bibliography	9.375% (03)	15.385% (04)	37.50% (12)	65.385% (17)	43.75% (14)	7.692% (02)	90.375% (03)	11.538% (03)	---	---
Union Catalogue	3.125% (01)	3.846% (01)	6.25% (02)	7.692% (02)	21.875 % (07)	7.692 % (02)	40.625% (13)	38.462% (10)	28.125% (09)	42.308% (11)

Table -15

Satisfaction level of with E-Resources

S.No.	Resources	Satisfaction level							
		Very satisfied		Satisfied		Somewhat satisfied		Dissatisfied	
		Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists
1	E- Book	6.25% (02)	----	65.625% (21)	76.923% (20)	28.125% (09)	23.077% (06)	---	---
2	E-Journals	56.25% (18)	80.769% (21)	34.375% (11)	19.231% (05)	9.375% (03)	---	----	---
3	E-Thesis	3.125% (01)	---	50.00% (16)	34.615% (09)	43.75% (14)	65.385% (17)	3.125% (01)	---
4	E- Newspaper	28.125% (09)	7.692% (02)	31.25% (10)	46.154% (12)	40.625% (13)	38.462% (10)	---	7.692% (02)
5	Encyclopedia	12.50% (04)	15.385% (04)	31.25% (10)	19.231% (05)	56.25% (18)	65.385% (17)	---	---
6	Full text database	12.50% (04)	23.077% (06)	75.00% (24)	65.385% (17)	12.50% (04)	11.538% (03)	---	---
7	Internet	40.625% (13)	50.00% (13)	46.875% (15)	50.00% 13	12.50% (04)	---	---	---

To know the satisfaction level of E-Resources, table 15 clearly shows that majority of both the Research scholars (56.25%) and Scientists (80.769%) are satisfied with e-journals and somewhat satisfied with e- encyclopedia.

Barriers to use of e-Resources

Most of the research scholars and scientists did not face any problem in using e-Resources except a few.

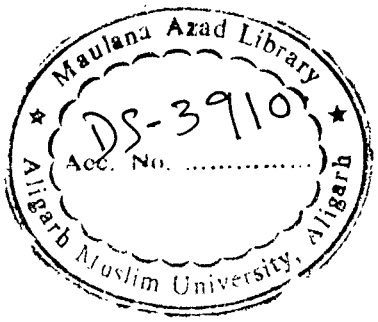

Table -16

Satisfaction level of E-Resources

S.No.	Resources	Satisfaction level							
		Very satisfied		Satisfied		Somewhat satisfied		Dissatisfied	
		Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists	Research Scholars	Scientists
1	Online Databases	31.25% (10)	42.308% 11	56.25% (18)	57.692% (15)	12.50% (4)	---	---	---
2	Online Reference work	40.625% (13)	34.615% (09)	34.375% (11)	61.538% (16)	25.00% (08)	03.846% (01)	---	---
3	Online Catalogue	9.375% (03)	---	40.625% (13)	46.154% (12)	50.00% (16)	50.00% (13)	---	3.846% (01)
4	Online ILL	---	---	18.75% (06)	23.077% (06)	75.00% (24)	73. 077% (19)	6.25% (02)	3.846% (01)

The table 16 depicts that most of the Research scholars are satisfied with online databases (56.25%) and very satisfied with online reference work (40.625%) whereas Scientists are satisfied with online reference work (61.538%) and very satisfied with online databases (42.308%).

Performance of the Library

All research scholars and scientists were overall satisfied with the e-resources available in the library of ITRC.

Chapter- 5

Findings, Suggestions, Conclusion

Findings, Suggestions and Conclusion

Findings

1. A large number of Research Scholars visit the library daily whereas Scientists do so occasionally.
2. All the Research Scholars and Scientists are aware of E-Resources.
3. Majority of the Research Scholars and Scientists in ITRC gave the first rank to e-journals.
4. It is observed by the data which is collected through the questionnaire that all the Research Scholars and Scientists used internet.
5. Most of the Research scholars and Scientists used internet for E- mail purpose.
6. All the Research Scholars and Scientists used Google search engine, followed by Yahoo. Other search engines are not used.
7. It is found that maximum number of the Research Scholars and Scientists used 'Phrase' as an advance search method for the retrieved information.
8. A large number of the Research Scholars use Elsevier.com, followed by Nature.com whereas Scientists mostly used Elsevier.com and followed by Nature.com.
9. Almost all the Research scholars and Scientists spent two or more than two hours in a day for accessing E-Resources and internet tools.
10. Maximum number of the Research Scholars access E-Resources from the library whereas Scientists do so from the lab.
11. Maximum number of the Research Scholars and Scientists used E-Journal daily.
12. Most of the Research Scholars and Scientists use E-Resources for research work and a large number of Scientists used E-Resources for teaching purpose.

13. It is observed from the data, that online database and online references are important E- Resources for the Research Scholars and Scientists.
14. Majority of the Research Scholars used Biological Abstracts for the literature search whereas Scientists used Web of Science.
15. To locate E- information, most of the Research Scholars and Scientists often use Keyword.
16. Most of the Research Scholars and Scientists are satisfied with Library Databases, Indexes, and Bibliographies on the other hand both are not satisfied with Union Catalogue and Directories.
17. Almost all the Research Scholars and Scientists did not face any problem in using E- Resources except a few
18. Maximum number of the Research Scholars and Scientists both are very satisfied with E-Journals.
19. From the interpretation of data it is found that both the Research Scholars and Scientists are very satisfied with online database and online references on the other hand both are partially satisfied with online catalogue and online ILL.
20. All research scholars and scientists were overall satisfied with the e-resources available in the library of ITRC.

I have collected the data from the chief librarian through questionnaire in which library services and e-resources which are provided by the library are clearly defined. Some of the important points are given below:

1. The library of ITRC is providing bibliography, full text and index in electronic form.
2. Scientists are the main user group for E-Resources.
3. For the accessing of e-resources, CSIR E-consortium is available in the library.

4. The main criterion adopted by the library for the selection of E-Resources is subscription cost.
5. There is no problem faced by the library in implementing the E-Resources.
6. The library has neither any training programme organized nor Research Scholar and Scientists need it.
7. The parent organization CSIR provided financial assistance to the library.
8. After implementing E-Resources in the library some types of benefits are noticed by the librarian which are given below:
    - Dynamic e-resources
    - Easier administration
    - Centralized E-Resources

09. E-Journals are mostly used in library.

10. After introducing E-Resources in the library use of the Resources are increasing.

11. In the session 2011-12 library spent 39 lakh for the journal and E-Journals which are highest than the others.

Tenability of Hypothesis

The tenability of hypothesis can be checked in the light of above findings.

Hypothesis I - Maximum number of Research Scholars and Scientists in ITRC are aware about the existing E-Resources.

It is clear from the questionnaire that 100% of the Research scholars and Scientists are aware of the E-Resources hence, the hypothesis proved to be true.

Hypothesis II - Scientists are using E-Resources more than Research Scholars for their work.

It is clear from the table 3 and table 9 that Scientists are using E-Resources more than the Research Scholars. So the hypothesis is proved.

Hypothesis III - Both Research Scholars and Scientists are mostly using E-journals for their research work in IITR.

It is clear from the table 3 in which both the Research Scholars and Scientists gave the first rank to the E-Journals and also table 9 clearly displays that both are used E- Journals daily hence, the hypothesis is proved.

Hypothesis IV- Both the Research Scholars and Scientists are satisfied with E-Resources provided by the library.

It is clear from the table 15 and 16 that the Research Scholars and Scientists both are satisfied with the E-Resources which are provided by the library. So the hypothesis is proved.

Hypothesis V - The budget of E-Journals allocation is more than others in ITRC.

From the librarians questionnaire it clear that 39 lakh spent in only E-Journal whereas for the books only one lakh hence, the hypothesis is proved.

Suggestions

The present study puts forwarded the following suggestions for access of E-Resources by the Research Scholars and Scientists in ITRC, Lucknow.

- Library should provide more data bases to access.
- In the era of E-Resources there is a need to devise a strategy of saving the old treasure of journals and other literature.
- Library should improve the convenience to access the E-Resources.
- Library should provide more terminals and links to access the databases.
- It is necessary to update the E-Resources.
- The subscription of core journals should be increased.
- Library should be organising programmes to train the users in using different types of E-Resources.

Conclusion

This study sought to examine the use of E-Resources by the Research Scholars and Scientists in ITRC, Lucknow. The study proved that 100% of the Research Scholars and Scientists were aware of E-Resources and make use of them. The objectives of the following study are satisfactorily met most of the E-Resources and make use of them. They use new means of technology for study, research and teaching purpose in addition for retrieving quick information. The resources available on the internet, library database are used by Research Scholars and Scientists generally on their personal desktop/ Laptop and in the Library and their lab. The library provides a wide range of information in electronic form, gives assistance to access resources to up-to-date information.

For searching resources generally the library provides e-consortia, CD-ROM databases. The E-Resources have rapidly changed the way of seeking information. For searching quick information keyword is often used by the Research Scholars and Scientists. The Research Scholars and Scientists mostly get information from the E- journals.

Suggestion for the further study:

The study can also be conducted to know the comparison between two or different institutions.

The study can also be conducted to know the comparison between the Research Scholars and Scientists in the same or different institutions.

Appendices

Bibliography

1. Adebambo Adewale Oduwole, Olatundun Oyewumi,(2010). Accessibility and use of web-based electronic resources by physicians in a psychiatric institution in Nigeria Program: electronic library and information systems, 44 (2), *109-128.*
2. American Library Association (1993). *World encyclopedia of library and information services*, ALA Chicago.
3. Ansari, Munira Nasreen &Zuberi,Busha Adeeb(2010).Use of electronic resources among the Academics at the University of Karachi. *Library philosophy and practice, Annual Volume.* Retrived from
4. Baljinder Kaur and Verma, Rama Use of Electronic Information Resources:A Case Study of Thapar University. *DESIDOC Journal of Library and Information Technology*, 2 (2), 67-73.
5. Banerjee, S.K. (1999). Electronic journal: a new era. *IASLIC Bulletin*, 44(2), 116-121.
6. Birdar,B.S, Rajshekhar,G.R and Sampthy Kumar, B.T (2008). Use of search engines for retrieval of scholarly information: A case study. *IASLIC Bulletin,* 53 (4), 212-222.
7. Bradey, Phil and Hanson, Terry (1994). Going online and CD-ROM", *ASLIB the association for information management*, 2-3.
8. Brown, S.A. (1997). Scholarly publishing using electronic means: a short guide, *Newcastle University*, Northumbia.
9. Chakrabarty, R. and Singh, R. (2005). E-Resources for Indian Universities: New Initiatives, *SRES journal of information management,* 42 (1), 7-73.

10. Chetan Sharma and Guru Gobind Singh (2009). Use and impact of e-resources at Guru Gobind Singh Indraperastha University: A case study. *Electronic Journal of Academic and Special Librarianshi,* 10 (1)
11. Cox, John E. (1997). Publishers, publishing and the internet: Now journal publishing will survive and prosper in the electronic age. *Electronic Library.* 1(5), 125-131.
12. Gregony, Vicki, L. (2000). Selection and managing electronic resources: a how to do it manual for librarian, Neat Schuman, New York.
13. Grinsparg P (1999), *Winners and Losers in the global research village."* http://www.library.wine .edu/icsu/ginparg.htm.
14. Harnad, (1996), *"An implementing peer review on the net scientific quality contra in scholarly electronic journals". http://www.cogsci.soton.ac.uk/-harnad/papers/Harnad/harnad 96.peer.review.html.*
15. Hayati, Z., and Alijani, R. (2005). The web search engines and general reference question. *Iranian journal of Information Science*, 3(1), 18-32.
16. Hitchcock, S. Carr, L. and Hall, W. (1998), *"Marketing the most electronic journals".*
17. ISBD, ER: International Standard Bibliographic Description for Electronic Resources http://www.ifla.org/VII/SIJ/Pubs/isbd

Jain, Sonal and Jain, Anil. Electronic protpholio: a valuable earning and assessment tool in higher education, *University News*, 44(13) 9-17.

18. Joteen, R.K., Madhuri Devi Singh and Raychoudhary, Arup (2009). Use of internet Based e-resources at Manipur University: A survey. *Annals of Library and Information Studies*, 56 (1). 52-57

19. Kanniyappan, E., Nithyanandam,K.and Ravichandran,P.(2008).Use and impact of e-resources in an academic and research enviorment:a case study. *Kelpro Bulletin,* 12(1), 27-36.

20. Keefer, A. (2001), Electronic journals, scholarly communication and libraries, *BIP*, 6.

21. Khudair,Ahmad A. and Cooke, Louise (2008). Health care personnel's use of e-information sources in Riyadh governmental hospitals. *Journal of Librarianship and Information Science*, 40 (3), 207-217.

22. Kumbar, Mallinath and others (2005). Use of the electronic resources by research scholars in CFTRI, Mysore: A study. *ILA bulletin*, 41(3), 16-20.

23. Lancaster, F. W. (1987), Electronic Publishing, *Library*

24. Lohar, M.S. and T.N., Roopashree. (2006). Use of electronic resources by faculty members in B.I.E.T., Davanagere: A survey. *SRELS Journal of Information Management*, 43(1), 101-112.

25. Mahapatra, Gayatri (2006). Information needs of Scientists and engineers in Electronic environment: a case study. *Annals of library and Information Studies*, 53 (4), 173-183.

26. Manhas, Rajeev (2008) .Use of the Internet and Electronic Resources for Dental Science Information: A Case Study. *Library Philosophy and Practice.*1-8.Retrived from http://unllib.unl.edu/LPP/manhas.pdf

27. Maruthupandia, B, and others. Impact of e-document in the modern information era.

28. Moorthy, K. Thandera et al. (2003). Quality in digital information

29. Naushad Ali P.M (2005). The use of electronic resources at IIT Delhi Library: a study of search behaviours. *The Electronic Library*, 23 (6), 679-700.

30. Nikam, Khaiser and Pramodini (2007). Use of e-journals and databases by the academic community University of Mysore: A survey. *Annals of Library and Information Studies*,54 (1), 19-22.

31. Nisonger, Thomas E. (1999). A review of the 1997 collection development and management literature, *Collection Building*, 18(2), 67-80

32. Parameshwar, S.and Patil, D. B. (2009). Use of the Electronic resources by Faculty members and Research Scholars in Gulbarga University, Gulbarga: a survey. *SRELS journal of Information management, 46(1),* 57-63.

33. Perpetua S, Dudzie (2005).Electronic resources: access and usage at Ashesi University College. *Information System.22 (5),* 290-297.

34. Rajeev Kumar and Amrit Pal Kaur (2005) Internet and its use in the engineering colleges of Punjab, India case study. *Weblogy*, 2 (4)

35. Rathod, Meeta (2006). Digital Information in an undergraduate management college, *Digital Libraries in knowledge management,* Ess-Ess, 141-161.

36. Renwick Shamin. (2009). Knowledge and use of electronic information resources by medical sciences faculty at The University of the West Indies. *DESIDOC Journal of Library & Information Technology*, 29(2), 67-73 retrieval, *University News,* 6 (66), 7.

37. Rowley, J. (2001), "JISC user behavior monitoring and evaluation framework", Ariadne, 30.

38. Satpathy, Sunil Kumar and Rout, Biswanath (2010). Use of E-Resources by the Faculty Members with Special Reference to CVRCE, *Bhubaneswar. DESIDOC Journal of Library & Information Technology*, 30(4), 11-16.

39. Satyapathy, Sunil kumara, Swain chandrakant and Rotary, Bijayalaxmi (2008). Collection building and achieving of e-resources' in library: issues and concern, Digital libraries, Mahamaya New Delhi, 36.

40. Shukla, Praveen and Mishra, Rajani (2011). Use of e- Resources by the research scholars of institute of technology, Banaras Hindu University, India. *Researcher World journal of Arts, Science and Commerce,* 2(2), 184-193.

41. Syed, Shakil Ahmad (2004), *"Handbook on Information Technology*, 2.258-2.559.

42. Tenopir, Carol (2003).Use and users of Electronic Library Resources: an overview and analysis of recent research studies.

43. Thanuskodi, S and Ravi, S (2011). Use of Digital Resources by faculty and research Scholars of Manonmaniam Sundaranar University, Trinelveli, DESIDOC, *Journal of Library And Information Technology*, 31(1), 25-32.

Trends, 37 (3), 316-325.

44. Verma,Shilpi, Bhatnagar, Tanushree, Mahawar, K. L and Bhatnagar, Roheet (2009). Use of electronic resources in library of Sikkim Manipal Institute of Technology (SMIT),Sikkim.ICAL,Retrived from

45. Winter, E. and Dykstra, G. (2002), E-libraries comes into its own information, *Information Today,* 19 (7). www.wied.edu.na/ MBE/libraries/nis/general /insurance-1/hisman-defhtm.

Web References:

46. http://crl.du.ac.in/ical09/papers/index_files/ical-114_102_231_2_RV.pdf
47. http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1398&
48. http://southernlibrarianship.icaap.org/content/v10n01/sharma_c01.html .
49. http://www.clir.org/pubs/reports/pub120/pub120.pdf
50. http://www.emeraldinsight.com/journals.htm?articleid=1858341&show=htm
51. http://www.ohiolink.edu.
52. http://www.researchersworld.com/vol2/issue2/Paper_17.pdf
53. http:/www.ariadne.ac.uk/issue30/jisc/intro.html

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

ALIGARH MUSLIM UNIVERSITY, ALIGARH

Questionnaire

Respected Sir/Madam

I am conducting a survey on **"Use of e-resources by the research scholars and scientists in ITRC (Indian Institute of Toxicological Research), Lucknow: a survey"** for my M.L.I.Sc. Dissertation work under the supervision of S Mustafa Zaidi (reader), Department of library and information science. In this regard I would like to request to you kindly fill this questionnaire. The information gathered shall be kept confidential and used for study purpose only.

For this act of kindness I shall be thankful to you.

Your sincerely
Mohd. Saifullah

Personal Details:

Name..... **Gender** .....

Scientist ( ) Year of joining..... **Research scholar ( ) Year of joining**.....

1- How frequently do you visit the library?

a) Daily ( ) b) Weekly ( )
c) Monthly ( ) d) Occasionally ( )

Awareness of e-resources

2- Are you aware about E-Resources available in library?

a) Yes ( ) b) No ( )

3- Please indicate which type of E-Resources are being used by you? Please rank them i.e. 1 2 3 4 (1 for the highest rank)

a) E-books ( ) b) E-Journals ( )
c) E-thesis ( ) d) E-Newspaper ( )
e) E-Encyclopedia ( ) f) CD-ROM databases ( )
g) Online databases ( ) h) Online references sources ( )
i) E-mail/ discussion group ( ) j) Any other please specify.....

Use of internet

4- Do you use the internet?
a) Yes ( ) b) No ( )

5- If yes what is the main purpose of using internet resources (multiple answer are permitted)?
a) E-mail ( ) b) Browsing ( )
c) News group ( ) d) Entertainment ( )
e) Other please specify.....

6- Which internet search engine(s) is frequently used by you? (Multiple answers are permitted)
a) Google ( ) b) Alta vista ( )
c) Yahoo ( ) d) Excite ( )
e) Lycos ( )
f) Any other please specify.....

7- Which advanced search method is used by you for retrieving information?
a) Boolean operator ( ) b) Truncation of (subject terms) ( )
c) Phrase ( ) d) Weighted term search ( )
e) Any other specify.....

8- Which E-Journals website is much used by you? (Multiple answers are permitted)
a) Jgate/infoindia.co.in ( ) b) Kluweron.com ( )
c) Elsevier.com ( ) d) Pub.acs.org ( )
e) Nature.com ( ) f) Any other specifies.....

9- How much time is spent by you for searching / accessing E-Resources and Internet tools in a day?
a) Less than one hour ( ) b) One hour ( )
c) More than one hour ( ) d) Two hour ( )
e) More than two hour ( )

Use of electronic resources

10- Where do you access E-Resources?
a) From the library ( ) b) From home ( )
c) From lab ( ) d) Other place specify.....

11- What is the frequency of using E-Resources?

	Daily	weekly	monthly	bimonthly	occasionally	Never
a) E-Books	( )	( )	( )	( )	( )	( )
b) E-Journals	( )	( )	( )	( )	( )	( )
c) E-thesis	( )	( )	( )	( )	( )	( )
d) E-Newspaper	( )	( )	( )	( )	( )	( )
e) CD-ROM databases	( )	( )	( )	( )	( )	( )
f) Online databases	( )	( )	( )	( )	( )	( )
g) Online reference source	( )	( )	( )	( )	( )	( )

12- What are the purposes of using E-Resources (Multiple answers permitted)?

a) For study purpose ( ) b) For up-to-date knowledge ( )
c) For research work ( ) d) for teaching purpose ( )

13- How do you rank the value of these E-Resources on conducting your research and development?

	Important	Not important	No Response
a) E-Books	( )	( )	( )
d) E-newspaper	( )	( )	( )
c) E-thesis	( )	( )	( )
e) E-encyclopedia	( )	( )	( )
f) CD_ROM database	( )	( )	( )
g) Online databases	( )	( )	( )
h) Online reference sources	( )	( )	( )

14- Please indicate how frequently you use the following databases for literature searching purpose?

a) Chemical abstracts ( ) b) Biological Abstracts ( )
c) Scinfinder ( ) d) Web of Science ( )
e) R & D insight ( )
f) Any other specify.....

15- Which of the following you generally used for locating E- information in the library (multiple answers are permitted)?

a) Library databases ( ) b) Directories ( )
c) Indexes ( ) d) Bibliography ( )
e) Union catalogue ( ) f) Opac ( )

16- What are the search methods being used by you to locate E- information?

	Never	some time	often
a) Author	( )	( )	( )
b) Keyword	( )	( )	( )
c) Date of publication	( )	( )	( )
d) Journal/ book title	( )	( )	( )
e) Title of article	( )	( )	( )

17- How do you rate retrieval performance of the following sources to locate information from E-Resources?

	Excellent	Good	Fair	Average	No Response
a) Library database	( )	( )	( )	( )	( )
b) Directories	( )	( )	( )	( )	( )
c) Indexes	( )	( )	( )	( )	( )
d) Bibliographies	( )	( )	( )	( )	( )
e) Union catalogue	( )	( )	( )	( )	( )

Barriers of use of e-resources

18- Do you face any problem using E-Resources?

a) Yes ( ) b) No ( )

19- If yes please specify the reason?

a) Lack of training ( )
b) Non availability of full text ( )
c) Technical problem ( )
d) Lack of IT knowledge ( )

20- To what extent are you satisfied with the following E-Resources?

	Very satisfied	satisfied	some what satisfied	dissatisfied
a) E-book	( )	( )	( )	( )
b) E-journal	( )	( )	( )	( )
c) E-thesis	( )	( )	( )	( )
d) E-news paper	( )	( )	( )	( )
e) E-encyclopedia	( )	( )	( )	( )
f) Full text data base	( )	( )	( )	( )
g) Internet	( )	( )	( )	( )

21-To what extent are you satisfied with following E-Resources?

	Very satisfied	satisfied	some what satisfied	dissatisfied
a) Online databases	( )	( )	( )	( )
b) Online references work	( )	( )	( )	( )
c) Online catalogue	( )	( )	( )	( )
d) Online ILL	( )	( )	( )	( )

Performance of library

22- Over all: to what extent are you satisfied with E-Resources your library provide?

a) Strongly satisfied ( ) b) Satisfied ( )
c) Dissatisfied ( ) d) strongly dissatisfied ( )

23- The librarian offers adequate bibliographic instruction and assistance to enable you to use E-Resources effectively?

a) Strongly satisfied ( ) b) Satisfied ( )
c) Dissatisfied ( ) d) strongly dissatisfied ( )

24-do you have any other comment for further improvement of libraries e-resources and services offered by your library

.....
.....
.....
.....

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

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Respected Sir/Madam

I am conducting a survey on **"Use of E-Resources by the Research Scholars and Scientists in ITRC (Indian Institute of Toxicological Research), Lucknow: a survey"** for my M.L.I.Sc. Dissertation work under the supervision of S Mustafa Zaidi (reader), Department of library and information science. In this regard I would like to request to you kindly fill this questionnaire. The information gathered shall be kept confidential and used for study purpose only.

For this act of kindness I shall be thankful to you

Your sincerely
Mohd. Saifullah

Questionnaire for Chief Librarian

Personal Details:

Name..... **designation** .....

Institute.....

Please fill the information in blank space / put tick (√) marks as applicable to each case.

Performance of library

1- What kind of E-Resources are being provided in your library?

a) Bibliography ( ) b) Index ( )
c) Full Text ( ) d) All of the above ( )

2- Who are your main user group for E-Resources?

a) Scientists ( ) b) Research scholars ( )
c) Technical Staff ( ) d) Others ( )

3- Please indicate through which source library provide access to the E-Resources.

a) E- Consortia ( ) b) Through publisher ( )
c) ILL ( ) d) Others ( )

4- Which of the following e-consortia are you using for accessing E-Resources in your library?

a) UGC- INFONET ( ) b) INDEST ( )
c) FORSA ( ) d) CSIR ( )
e) J-gate ( ) f) Any other specify.....

Policy

5-What criteria are adopted by the library for the selection of E-Resources (multiple answers are permitted)?

a) Subject coverage ( ) b) User friendliness ( )
c) System performance ( ) d) Retrieval feature ( )
e) Subscription cost ( ) f) Any other specify.....

Budget

6-Library's annual budget (in lacs) allocation for

	2010-11	2009-10	2008-09
Books	.....	.....	.....
Periodicals	.....	.....	.....
E-resources	.....	.....	.....

7- Is there any grant/fund for purchasing E-Resources?

a) Yes ( ) b) No ( )

8- If yes please give details of the last years

Sessions	Amount
2007-08	.....
2008-09	.....
2009-10	.....

Problem

8-Did you face any problem while implementing E-Resources in your library?

a) Yes ( ) b) No ( )

9-If yes please specify which of the following

a) Lack of training ( )
b) Lack of skilled man power ( )
c) Lack of manual ( )
d) Lack of advisory services ( )
e-Any other specify.....

Training program

10-Do you think professional/scientists/research scholars training is needed in your library?

a) Yes ( ) b) No ( )

11-Does your institute organize any training programme for library professionals/scientist/research scholar (multiple answer are permitted)

a) Onsite training ( ) b) Off site training ( )
c) Group training ( ) d) One by one training ( )
e) Other please specify.....

12-Who provide financial assistance to organize training programme?
a) Your parent organization ( )
b) HRD ( )
c) Govt. of India Planning Commission ( )
d) Govt. of India (Ministry of chemical and fertilizers) ( )
e) Any other specify.....

13-By which mode of distribution, you provide the information available in E-Resources to your users?
a) Through e-mail ( ) b) Print on paper ( )
c) Through desktop ( ) d) Other ( )

14-Do you find any change in use of printed information sources after the introduction of E-Resources in your library?
a) Yes ( ) b) No ( )

15-If yes please specify...
a) Uses increased ( ) b) Increased first then decreased ( )
c) Uses decreased ( ) d) Decreased first then increased ( )

16-What benefits do you notice after the implication of E-Resources in your library (multiple answer are permitted)?
a) Centralized e-resources ( ) b) Dynamic e-resources ( )
c) Manageability ( ) d) Easier administration ( )
e) Content customization ( ) f) All of above ( )

Facilities and mostly used E-Resources

17-Name of the E-Resources which is widely used in your library? Please rank them i.e. 1,2,3,4...(1- for the highest rank).
a) E-Book ( ) b) E-Journals ( )
c) E-Thesis ( ) d) E-News paper ( )
e) E-Encyclopedia ( ) f) CD-ROM database ( )
g) Online databases ( ) h) Online references source ( )
i) Internet ( ) j) Any other specify.....

18-Please comment on the following facilities for E-Resources available in your library.
a) Number of collection.....
b) Number of computer system.....
c) Number of printer.....
d) Sitting capabilities.....
e) Any other specify.....

19-Please give your future plan/suggestion to improve the existing e-resources/services in your library.....
.....thanking you.